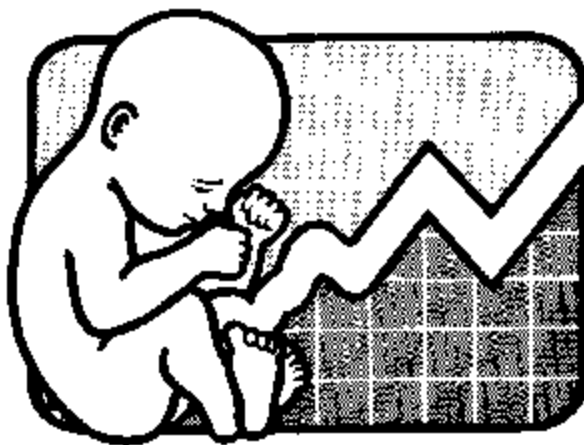




1992
Arizona Birth Defects
Monitoring Program Report



Epidemiologic Report
Series 2000: 1



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1992 ARIZONA BIRTH DEFECTS MONITORING PROGRAM REPORT

**Arizona Birth Defects Monitoring Program
Office of Epidemiology and Statistics
Bureau of Public Health Statistics
Arizona Department of Health Services**

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EXECUTIVE SUMMARY

In 1992, there were 1264 children detected with a reportable birth defect born to Arizona residents. During this period there were 68,675 live births and 527 still births in Arizona. This report presents 44 composite categories of birth defects developed by the Centers for Disease Control and Prevention (CDC). Only 894 children of the 1264 with birth defects are included in these categories and, therefore, in this report. These categories represent the most serious defects and most frequently addressed defects in the scientific literature. Arizona's overall birth defect rate is 18.26 cases per 1,000 births. Pyloric stenosis, microcephaly, oral clefts, obstruction of kidney/ureter, dislocation of hip, and Down syndrome were the 6 most common birth defects. Other defects collected in the ABDMP are presented in Appendix 8. The most common of these are hypospadias and ventricular septal defect.

Race/Ethnicity Patterns

Among Native Americans and Blacks microcephaly was the most common anomaly, while among Whites and Hispanics it was pyloric stenosis. Spina bifida was the most common neural tube defect (NTD) among all races; however, rates were highest among Hispanics. Down syndrome exhibited highest rates among Native Americans.

Age Patterns

Observed rates for all birth defects were highest among women 35 years of age and older. Down syndrome (Trisomy 21) rates increased with maternal age. Gastroschisis, an abdominal wall defect, showed highest rates among younger mothers.

County Patterns

Birth defects data are presented by county. Cases were aggregated for the years 1986 through 1992 to provide numbers large enough for analysis. Gila county had the highest rate of congenital anomalies, whereas Greenlee and La Paz counties had the lowest rates. There are significant differences between overall rates of Arizona's 15 counties and that of the state. Five sentinel defects (chromosomal defects, oral clefts, heart defects, abdominal wall defects, and neural tube defects) were analyzed by county.

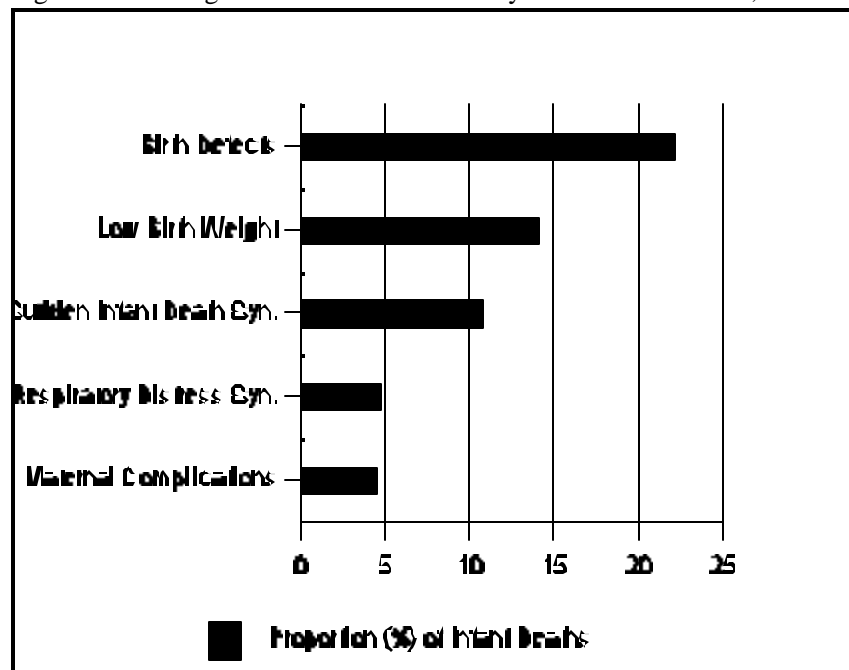
THE IMPORTANCE OF ARIZONA'S BIRTH DEFECTS REGISTRY

A birth defects registry serves several public health functions. The Arizona Birth Defects Monitoring Program (ABDMP) is a population-based registry which provides accurate counts used for prevention efforts, planning health services, and ongoing surveillance to monitor for trends and early detection of problems. Such a registry is necessary because other systems for reporting birth defects, including birth certificates and hospital discharge data are often not accurate or complete. Research on the accuracy of birth certificates and hospital discharge disease index show an under reporting in the number of cases of birth defects. In addition, defects were reported in infants that in fact did not have any defects.^{1,2,3,4,5}

Economic Impact

Birth defects are the leading cause of infant mortality in the United States, accounting for 22.0 % of infant deaths in 1997 (see Figure 1).⁶ While it has been known that the cost of birth defects in the U.S. is enormous, past collection methods of anomalies have not provided accurate estimates of the economic cost. A recent study using California's population based data (adjusted to provide national estimates) estimated the cost of the most clinically important structural birth defects in the United States.

Figure 1. Leading Causes of Infant Mortality in the United States, 1997



Estimates from this study found lifetime costs ranging from \$75,000 to \$503,000 per new case. The following are estimates for selected congenital anomalies: Down Syndrome (\$451,000); the heart defect Truncus Arteriosus, (\$503,000) and Spina Bifida (\$294,000).⁷ Harris and James, 1997 updated these estimates for each state and included factors such as lost wages to family members caring for children who have birth defects and psychosocial costs. Using data on the 1988 Arizona birth cohort, estimated lifetime costs in 1992 dollars of selected birth defects range from \$1,275,543 to \$41,596,118.⁸

Human Cost

An estimated 3-5 % of births ascertained by intensive case ascertainment systems or 116,000 to 194,000 babies were born with serious birth defects in the United States in 1997.⁹ For Arizona, in 1992 there was a total of 1264 live births and fetal deaths with a birth defect. While the economic costs associated with birth defects are easier to ascertain, estimating the human and societal costs is more difficult.

While some defects such as fetal alcohol syndrome and German measles are preventable, many defects are caused by unknown teratogens. The search for causes of birth defects is a difficult process. If Arizona is to ensure its children a healthy future, we must continue to search for the causes of congenital anomalies. Birth defect registries are a vital first step in reducing birth defects. The documentation of baseline birth defect rates in Arizona provides the starting point against which we can measure successful interventions.

METHODS

Data Sources and Procedures

The ABDMP is a statewide, population-based, active surveillance program, pursuant to ARS §36-133 which mandates the surveillance of chronic diseases, including birth defects. Trained ABDMP staff collect data from 64 reporting sources: 58 hospitals, including Phoenix Children's Hospital; 2 center providing genetics services; 4 clinics of the state Children's Rehabilitative Services; and the state Office of Vital Records. Ascertainment procedures used by the ABDMP are similar to those used by the California Birth Defects Monitoring Program and the US Centers for Disease Control's Metropolitan Atlanta Congenital Defects Program (MACDP).

Sources of data at hospitals include the disease index; labor and delivery log; nursery log; newborn intensive care log; pediatric log; and pathology/autopsy log. Not all sources are available at each hospital. Potential cases are identified through a review of the hospital's disease index and various logs. This process is called case finding. Next, hospitals are asked to pull the medical records of possible cases, the ABDMP staff review these charts to determine which infants meet the case definition. The ABDMP staff complete an abstract of the medical record for each reportable case. In order to find the birth defect cases born in 1992, ABDMP staff reviewed more than 10,000 medical records, identified reportable cases, and excluded those not meeting the case definition.

In addition to the hospital sources, Certificates of Birth, Death, and Fetal Death that indicate a birth defect are reviewed and matched against cases listed in the registry. Medical records then are requested from the reporting hospitals on those children not previously identified from other sources and if the condition(s) reported meet the case definition, pertinent information is abstracted for the registry. If the nature of a defect diagnosed in the first year of life is more precisely diagnosed later in the child's life and this information is contained in the chart at the time of our review (which occurs 2-4 years after the child's birth or fetal death) then the more precise diagnosis is used.

The abstracts of cases identified from multiple sources are compared, merged, and added to the registry. Inconsistencies, differences and/or conflicting data are resolved before being entered into the ABDMP system.

ABDMP staff assign a six-digit classification code to each defect. The classification system is CDC's modification of the British Pediatric Association (BPA) Classification of Disease. This coding system is similar to the International Classification of Disease (ICD). The staff collect diagnostic information on

birth defects that fall primarily within the range of ICD-9-CM Codes 740.00-759.99. The system of codes is hierarchical: the more digits in the code, the more precise the diagnosis. ABDMP staff always code the data at the most precise level possible.

Case Definition

The following are the criteria for inclusion in the Birth Defects Monitoring Program case file:

- A. The mother's place of residence at the time of birth must be in Arizona.
- B. The child must have a structural, genetic, or biochemical birth defect, or other specified birth outcome that can adversely affect an infant's health and development (most, but not all, are listed in ICD-9-CM 740.0-759.9).
- C. The defect must be diagnosed, or signs and symptoms of a potential defect recognized, within the first year of life.
- D. Stillborn infants are included if they have a reportable birth defect.
- E. The date of birth (or delivery for stillbirths > 19 weeks of gestational age) is on or after January 1, 1986.

It should be noted that the case definition in this report has been changed. Due to the need to collect and report data on birth defects in a more timely manner, effective March, 1996, the ABDMP reduced the number of reportable conditions to include only the major congenital anomalies recommended by "The International Clearinghouse for Birth Defects Monitoring Systems" and recommended by CDC. The retained, reportable defects still permit the ABDMP to compare its rates with other registries for the major birth defects categories. The number of reportable congenital anomalies was reduced from over 500 to 140 conditions. This change started with the data collection of the birth defects occurring in 1992. This resulted in a reduction in the number of children with reportable birth defects from 2,148 in 1991 to 1,264 in 1992.

INTERPRETING THE DATA

The tables and figures presented in this report represent data collected on birth defects in Arizona for the 6 year period, 1986 to 1992. Each table presents the reported counts, rates and confidence intervals on selected congenital anomalies. Below is an explanation of how counts, rates, and confidence intervals were calculated.

Counts

The counts, sometimes called cases, represent the number of children who were diagnosed with a particular reportable birth defect within the first year of life. Children born with more than one reportable defect, as often occurs, may appear in the counts across multiple rows.

Rates

Incidence rates of birth defects were calculated by dividing the number of children with a particular reportable defect by the total number of live births (and in some cases live births plus fetal deaths) for the specific year of interest and then multiplying by 10,000. In most tables and figures, we show rates that are calculated by including live births and fetal deaths in both the numerator and denominator. For example, there were 87 cases of Down Syndrome in 1992 and 69,202 live births and fetal deaths in 1992. The rate is calculated as $87/69,202 \times 10,000 = 12.57$ cases of Down Syndrome per 10,000 live births and fetal deaths combined.

Confidence Intervals

The confidence intervals shown in the tables and figures are provided to give information about the estimate of the rate. Confidence intervals presented in this report are the 99 percent Poisson confidence intervals. The confidence intervals indicate that the true rate should be contained in this interval 99 percent of the time. For example, Down Syndrome occurs at a rate of 12.57 per 10,000 births. The lower and upper bounds of the point estimate in this case are 9.4 and 16.5, respectively. Thus, one can say with 99 percent certainty that the true rate of Down Syndrome is between 9.1 and 16.5 cases per 10,000 live births and fetal deaths.

Small Numbers and a Note Of Caution

While the intent of these data is to provide the reader with useful information on birth defects in Arizona, an equally important point is not to mislead data users. Therefore, it is important to stress that rates, confidence intervals, or any other analysis based on fewer than 10 reported cases cannot be considered statistically reliable.

STATE PROFILE

State Data

This is the seventh annual report of data compiled by the ABDMP in its mission to collect and analyze information on children with birth defects and to provide data for the study of causes of birth defects in Arizona.

Tables and Figures

Table 1 presents data on 44 selected congenital anomalies by race for 1992. Table 2 presents all reportable birth defects for both live births and fetal deaths. Fetal deaths include therapeutic abortions and still-born babies with a reportable congenital defect if the estimated gestational age is greater than 19 weeks. Table 3 displays birth defect rates by year for 1986 through 1992. The series of graphs in Figure 2 display the trends for selected congenital anomalies.

County and Race/Ethnicity

An expanded look at selected birth defects and race/ethnicity follows the section on state profile. County level data is presented later in this report under the heading County Profiles.

Table 1
Arizona Birth Defects Monitoring Program
Congenital Anomalies - Arizona 1992
Incidence Rates^{a,b} per 10,000 Live Births and Fetal Deaths

| CODE | DEFECT GROUP | TOTAL | RATE | WHITE | RATE | HISP. | RATE | BLACK | RATE | NATIVE AMER. | RATE | OTHER | RATE |
|------|--------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-----------------|-------|-------|-------|
| A00 | CENTRAL NERVOUS SYSTEM | | | | | | | | | | | | |
| A01 | Anencephaly | 21 | 3.03 | 8 | 2.10 | 10 | 4.61 | 1 | 4.03 | 2 | 3.37 | 0 | 0.00 |
| A02 | Spina Bifida w/ Hydrocephaly | 26 | 3.76 | 15 | 3.94 | 10 | 4.61 | 0 | 0.00 | 1 | 1.69 | 0 | 0.00 |
| A03 | Spina Bifida w/o Hydrocephaly | 12 | 1.73 | 6 | 1.58 | 5 | 2.30 | 0 | 0.00 | 1 | 1.69 | 0 | 0.00 |
| A13 | Encephalocele | 2 | 0.29 | 1 | 0.26 | 1 | 0.46 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| A15 | Hydrocephaly | 34 | 4.91 | 14 | 3.68 | 11 | 5.07 | 2 | 8.06 | 5 | 8.43 | 2 | 18.50 |
| A16 | Microcephaly | 90 | 13.00 | 34 | 8.94 | 29 | 13.37 | 7 | 28.21 | 20 | 33.73 | 0 | 0.00 |
| B00 | EYE AND EAR | | | | | | | | | | | | |
| B03 | Glaucoma | 1 | 0.14 | 1 | 0.26 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| B04 | Cataract | 12 | 1.73 | 8 | 2.10 | 3 | 1.38 | 0 | 0.00 | 1 | 1.69 | 0 | 0.00 |
| B51 | Anophthalmia | 3 | 0.43 | 3 | 0.79 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| B52 | Microphthalmia | 22 | 3.18 | 9 | 2.37 | 6 | 2.76 | 4 | 16.12 | 3 | 5.06 | 0 | 0.00 |
| B54 | Ear Anomaly w/ hearing loss | 41 | 5.92 | 14 | 3.68 | 14 | 6.45 | 3 | 12.09 | 10 | 16.86 | 0 | 0.00 |
| D00 | CARDIAC | | | | | | | | | | | | |
| D01 | Truncus Arteriosus | 3 | 0.43 | 1 | 0.26 | 2 | 0.92 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| D02 | Transposition of great vessels | 25 | 3.61 | 14 | 3.68 | 5 | 2.30 | 1 | 4.03 | 5 | 8.43 | 0 | 0.00 |
| D03 | Tetralogy of Fallot | 32 | 4.62 | 11 | 2.89 | 12 | 5.53 | 4 | 16.12 | 5 | 8.43 | 0 | 0.00 |
| D04 | Single ventricle | 3 | 0.43 | 1 | 0.26 | 2 | 0.92 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| D51 | Aortic stenosis | 23 | 3.18 | 14 | 3.68 | 7 | 3.23 | 0 | 0.00 | 2 | 3.37 | 0 | 0.00 |
| D52 | Hypoplastic left heart | 13 | 1.88 | 7 | 1.84 | 5 | 2.30 | 1 | 4.03 | 0 | 0.00 | 0 | 0.00 |
| D53 | Tot. anomal. pulm. ven. return | 11 | 1.59 | 4 | 1.05 | 4 | 1.84 | 0 | 0.00 | 3 | 5.06 | 0 | 0.00 |
| E00 | RESPIRATORY | | | | | | | | | | | | |
| E01 | Choanal atresia | 6 | 0.87 | 5 | 1.31 | 0 | 0.00 | 1 | 4.03 | 0 | 0.00 | 0 | 0.00 |
| E06 | Agenesis of lung | 26 | 3.76 | 10 | 2.63 | 9 | 4.15 | 1 | 4.03 | 4 | 6.75 | 2 | 18.50 |
| F00 | OROFACIAL AND GASTROINTESTINAL | | | | | | | | | | | | |
| F01 | Cleft palate | 27 | 3.90 | 16 | 4.21 | 8 | 3.69 | 0 | 0.00 | 3 | 5.06 | 0 | 0.00 |
| F01 | Cleft lip w&wo cleft palate | 74 | 10.69 | 35 | 9.21 | 21 | 9.68 | 5 | 20.15 | 11 | 18.55 | 2 | 18.50 |
| F03 | Pyloric stenosis | 137 | 19.80 | 89 | 23.41 | 36 | 16.59 | 4 | 16.12 | 6 | 10.12 | 2 | 18.50 |
| F09 | Tracheo-esophageal fistula | 14 | 2.02 | 8 | 2.10 | 3 | 1.38 | 2 | 8.06 | 1 | 1.68 | 0 | 0.00 |

^a Incidence rates include live born and still born cases. ^b Incidence rates based on counts of less than 10 events are not statistically reliable.

Table 1 Continued
Arizona Birth Defects Monitoring Program
Congenital Anomalies - Arizona 1992
Incidence Rates^{a,b} per 10,000 Live Births and Fetal Deaths

| <u>CODE</u> | <u>DEFECT GROUP</u> | <u>TOTAL</u> | <u>RATE</u> | <u>WHITE</u> | <u>RATE</u> | <u>HISP.</u> | <u>RATE</u> | <u>BLACK</u> | <u>RATE</u> | <u>NATIVE</u> <u>AMER.</u> | <u>RATE</u> | <u>OTHER</u> | <u>RATE</u> |
|-------------|--------------------------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|-------------------------------|-------------|--------------|-------------|
| F00 | OROFACIAL AND GASTROINTESTINAL | | | | | | | | | | | | |
| F14 | Stenosis/atresia of duodenum | 13 | 1.88 | 7 | 1.84 | 6 | 2.76 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| F15 | Stenosis/atresia of sm. intest | 13 | 1.88 | 6 | 1.58 | 6 | 2.76 | 0 | 0.00 | 1 | 1.69 | 0 | 0.00 |
| F16 | Stenosis/atresia of rectum | 31 | 4.48 | 17 | 4.47 | 8 | 3.69 | 1 | 4.03 | 3 | 5.06 | 2 | 18.50 |
| F17 | Hirschsprung's disease | 7 | 1.01 | 4 | 1.05 | 2 | 0.92 | 1 | 4.03 | 0 | 0.00 | 0 | 0.00 |
| F18 | Malrotation of intestine | 10 | 1.44 | 3 | 0.79 | 5 | 2.30 | 1 | 4.03 | 0 | 0.00 | 1 | 9.25 |
| F21 | Biliary atresia | 4 | 0.58 | 2 | 0.52 | 1 | 0.46 | 0 | 0.00 | 1 | 1.69 | 0 | 0.00 |
| H00 | GENITO-URINARY | | | | | | | | | | | | |
| H01 | Renal agenesis | 33 | 4.77 | 17 | 4.47 | 10 | 4.61 | 1 | 4.03 | 3 | 5.06 | 2 | 18.50 |
| H06 | Obstruction of kidney/ureter | 73 | 10.49 | 37 | 9.73 | 24 | 11.06 | 3 | 12.09 | 9 | 15.18 | 0 | 0.00 |
| H09 | Bladder or urethra obstruction | 7 | 1.01 | 5 | 1.31 | 2 | 0.92 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| J00 | MUSCULOSKELETAL | | | | | | | | | | | | |
| J03 | Dislocation of hip | 66 | 9.54 | 32 | 8.42 | 23 | 10.60 | 0 | 0.00 | 11 | 18.55 | 0 | 0.00 |
| | Complete absence upp/low limb | 1 | 0.14 | 1 | 0.26 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| J51 | Phocomelia of Limb | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| J52 | Amniotic Bands | 8 | 1.15 | 5 | 1.31 | 1 | 0.46 | 1 | 4.03 | 1 | 1.69 | 0 | 0.00 |
| K05 | Diaphragmatic hernia | 13 | 1.88 | 7 | 1.85 | 4 | 1.84 | 1 | 4.03 | 1 | 1.69 | 0 | 0.00 |
| N01 | Omphalocele | 10 | 1.44 | 4 | 1.05 | 2 | 0.92 | 3 | 12.09 | 0 | 0.00 | 1 | 9.25 |
| N02 | Gastroschisis | 27 | 3.90 | 15 | 3.95 | 9 | 4.15 | 1 | 4.03 | 2 | 3.37 | 0 | 0.00 |
| N04 | | | | | | | | | | | | | |
| R00 | SYNDROMES | | | | | | | | | | | | |
| R01 | Down Syndrome (Trisomy 21) | 87 | 12.57 | 42 | 11.05 | 28 | 12.90 | 5 | 20.15 | 12 | 20.24 | 0 | 0.00 |
| R02 | Patau Syndrome (Trisomy 13) | 15 | 2.17 | 7 | 1.84 | 6 | 2.76 | 0 | 0.00 | 2 | 3.37 | 0 | 0.00 |
| R03 | Edwards Syndrome (Trisomy 18) | 12 | 1.73 | 7 | 1.84 | 3 | 1.38 | 1 | 4.03 | 1 | 1.68 | 0 | 0.00 |
| S02 | Fetal Alcohol Syndrome | 33 | 4.77 | 4 | 1.05 | 4 | 1.84 | 1 | 4.03 | 24 | 40.47 | 0 | 0.00 |

^a Incidence rates include live born and still born cases. ^b Incidence rates based on counts of less than 10 events are not statistically reliable.

Table 2
 Arizona Birth Defects Monitoring Program ^{a,b}
 Birth Defects by County of Residence, 1992
 (140 Conditions Monitored)

| STATE, COUNTY | LIVE BIRTHS W/DEFECTS | | STILL BIRTHS W/ DEFECTS | | LIVE AND STILL W/ DEFECTS | | NUMBER OF DEFECTS OF LIVE BIRTHS | | NUMBER OF DEFECTS OF STILL BIRTHS | |
|-------------------|--------------------------|---------|----------------------------|---------|------------------------------|--------|--|---------------|---|---------------|
| | Number | % OF LB | Number | % OF SB | Number | % TOT. | Number | AVG Number | Number | AVG Number |
| ARIZONA | 1202 | 1.75 | 62 | 11.76 | 1264 | 1.83 | 1994 | 1.66 | 123 | 1.98 |
| APACHE COUNTY | 29 | 1.79 | 1 | 10.00 | 30 | 1.84 | 47 | 1.62 | 1 | 1.00 |
| COCHISE COUNTY | 20 | 1.15 | 3 | 15.00 | 23 | 1.30 | 35 | 1.75 | 13 | 4.33 |
| COCONINO COUNTY | 40 | 2.13 | 1 | 6.25 | 41 | 2.17 | 73 | 1.82 | 3 | 3.00 |
| GILA COUNTY | 11 | 1.58 | 0 | 0 | 11 | 1.57 | 20 | 1.82 | 0 | 0 |
| GRAHAM COUNTY | 3 | 0.69 | 0 | 0 | 3 | 0.68 | 13 | 4.33 | 0 | 0 |
| GREENLEE COUNTY | 2 | 1.47 | 0 | 0 | 2 | 1.46 | 2 | 1.00 | 0 | 0 |
| LA PAZ COUNTY | 1 | 0.60 | 0 | 0 | 1 | 0.59 | 1 | 1.00 | 0 | 0 |
| MARICOPA COUNTY | 717 | 1.79 | 37 | 11.28 | 754 | 1.87 | 1154 | 1.61 | 64 | 1.73 |
| MOHAVE COUNTY | 28 | 1.85 | 1 | 12.50 | 29 | 1.91 | 38 | 1.36 | 3 | 3.00 |
| NAVAJO COUNTY | 39 | 2.11 | 3 | 21.43 | 42 | 2.26 | 73 | 1.87 | 7 | 2.33 |
| PIMA COUNTY | 200 | 1.74 | 11 | 17.19 | 211 | 1.82 | 345 | 1.72 | 20 | 1.82 |
| PINAL COUNTY | 36 | 1.75 | 1 | 5.00 | 37 | 1.79 | 56 | 1.56 | 1 | 1.00 |
| SANTA CRUZ COUNTY | 8 | 0.88 | 0 | 0 | 8 | 0.88 | 13 | 1.62 | 0 | 0 |
| YAVAPAI COUNTY | 21 | 1.62 | 2 | 10.53 | 23 | 1.75 | 31 | 1.48 | 2 | 1.00 |
| YUMA COUNTY | 47 | 1.68 | 2 | 13.33 | 49 | 1.74 | 93 | 1.98 | 9 | 4.50 |

^aTotal number of live births in Arizona for 1992 = 68,675

^bTotal number of fetal deaths in Arizona for 1992 = 527

Table 3
Arizona Birth Defects Monitoring Program
Incidence Rates^a Per 1,000 Live Births and Fetal Deaths, Arizona

| CODE/CONDITION (1) | | | | | | | | |
|-------------------------------|---------------------|-------------------------|-------------------------|-------------------------|--------------------------|--------------------------|--------------------------|-------------------------|
| | | <u>1986</u> | <u>1987</u> | <u>1988</u> | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> |
| A01 Anencephaly | Cases Rate CI | 22 0.35 0.19-0.60 | 17 0.26 0.12-0.48 | 18 0.27 0.13-0.48 | 18 0.27 0.13-0.48 | 16 0.23 0.11-0.43 | 17 0.25 0.12-0.45 | 21 0.30 0.16-0.52 |
| A02 S.B. with Hydrocephaly | Cases Rate CI | 26 0.42 0.24-0.69 | 24 0.37 0.20-0.62 | 19 0.28 0.14-0.50 | 22 0.33 0.17-0.55 | 23 0.33 0.18-0.56 | 21 0.31 0.16-0.53 | 26 0.38 0.21-0.61 |
| A03 S.B. without Hydrocephaly | Cases Rate CI | 10 0.16 0.06-0.35 | 11 0.17 0.06-0.35 | 6 0.09 0.02-0.23 | 16 0.24 0.11-0.44 | 16 0.23 0.11-0.43 | 13 0.19 0.08-0.37 | 12 0.17 0.07-0.35 |
| A13 Encephalocele | Cases Rate CI | 10 0.16 0.06-0.35 | 8 0.12 0.03-0.29 | 14 0.21 0.09-0.40 | 5 0.07 0.02-0.21 | 13 0.19 0.08-0.37 | 14 0.20 0.09-0.39 | 2 0.03 0.00-0.13 |
| A15 Hydrocephaly | Cases Rate CI | 34 0.55 0.34-0.85 | 41 0.64 0.41-0.95 | 48 0.72 0.48-1.04 | 44 0.65 0.43-0.95 | 52 0.75 0.51-1.06 | 46 0.67 0.44-0.97 | 34 0.49 0.30-0.75 |
| A16 Microcephaly | Cases Rate CI | 30 0.49 0.29-0.77 | 60 0.94 0.65-1.30 | 70 1.06 0.76-1.43 | 109 1.61 1.17-1.96 | 118 1.70 1.33-2.15 | 120 1.75 1.37-2.21 | 90 1.30 0.97-1.70 |
| B03 Glaucoma | Cases Rate CI | 2 0.03 0.04-0.15 | 7 0.10 0.03-0.26 | 4 0.06 0.00-0.19 | 5 0.07 0.02-0.21 | 4 0.06 0.01-0.18 | 2 0.03 0.00-0.14 | 1 0.01 0.00-0.11 |

(1) See appendix for explanation of the codes/conditions.
CI = Approximate 99% confidence intervals.
“Cases” are the number of live born and still born infants.

Table 3 Continued
Arizona Birth Defects Monitoring Program
Incidence Rates^a Per 1,000 Live Births and Fetal Deaths, Arizona

| CODE/CONDITION (1) | | | | | | | | |
|------------------------------------|---------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| | | <u>1986</u> | <u>1987</u> | <u>1988</u> | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> |
| B04 Cataract | Cases Rate CI | 8 0.13 0.04-0.30 | 7 0.10 0.03-0.26 | 7 0.10 0.03-0.26 | 15 0.22 0.10-0.42 | 24 0.35 0.19-0.57 | 10 0.15 0.05-0.31 | 12 0.17 0.07-0.35 |
| B51 Anophthalmia | Cases Rate CI | 6 0.09 0.02-0.25 | 1 0.01 0.00-0.11 | 3 0.04 0.00-0.16 | 5 0.07 0.02-0.21 | 7 0.10 0.03-0.25 | 5 0.07 0.02-0.21 | 3 0.04 0.00-0.16 |
| B52 Microphthalmia | Cases Rate CI | 10 0.16 0.06-0.35 | 24 0.37 0.20-0.62 | 21 0.31 0.16-0.54 | 19 0.28 0.14-0.50 | 24 0.35 0.19-0.57 | 29 0.42 0.25-0.67 | 22 0.32 0.17-0.54 |
| B54 Hearing loss w/ear anomaly | Cases Rate CI | 33 0.53 0.32-0.83 | 59 0.92 0.64-1.28 | 34 0.51 0.31-0.79 | 50 0.74 0.50-1.06 | 59 0.85 0.59-1.18 | 65 0.95 0.67-1.30 | 41 0.59 0.38-0.88 |
| D01 Truncus Arteriosus | Cases Rate CI | 4 0.06 0.01-0.20 | 10 0.15 0.05-0.33 | 9 0.13 0.04-0.30 | 9 0.13 0.05-0.30 | 6 0.09 0.02-0.23 | 6 0.09 0.02-0.23 | 3 0.04 0.00-0.16 |
| D02 Transposition of Great Vessels | Cases Rate CI | 32 0.52 0.31-0.81 | 26 0.40 0.23-0.66 | 26 0.39 0.22-0.64 | 33 0.49 0.30-0.75 | 28 0.40 0.23-0.65 | 26 0.38 0.21-0.62 | 25 0.36 0.20-0.59 |
| D03 Tetralogy of Fallot | Cases Rate CI | 15 0.24 0.11-0.46 | 18 0.28 0.13-0.50 | 29 0.43 0.25-0.69 | 23 0.34 0.19-0.57 | 27 0.39 0.22-0.63 | 22 0.32 0.17-0.54 | 32 0.46 0.28-0.72 |

(1) See appendix for explanation of the codes/conditions.

CI = Approximate 99% confidence intervals.

“Cases” are the number of live born and still born infants

Table 3 Continued
Arizona Birth Defects Monitoring Program
Incidence Rates^a Per 1,000 Live Births and Fetal Deaths, Arizona

| CODE/CONDITION (1) | | | | | | | | |
|---|---------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| | | <u>1986</u> | <u>1987</u> | <u>1988</u> | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> |
| D04 Single Ventricle | Cases Rate CI | 2 0.03 0.00-0.15 | 4 0.06 0.01-0.19 | 5 0.07 0.01-0.21 | 4 0.06 0.01-0.19 | 6 0.09 0.02-0.23 | 1 0.01 0.00-0.11 | 3 0.04 0.00-0.16 |
| D51 Aortic Stenosis | Cases Rate CI | 8 0.13 0.04-0.30 | 15 0.23 0.10-0.44 | 17 0.25 0.12-0.46 | 25 0.37 0.21-0.61 | 17 0.25 0.12-0.45 | 17 0.25 0.12-0.45 | 23 0.32 0.18-0.56 |
| D52 Hypoplastic Left Heart | Cases Rate CI | 9 0.14 0.05-0.32 | 16 0.25 0.11-0.46 | 8 0.12 0.03-0.28 | 16 0.24 0.11-0.44 | 19 0.28 0.14-0.48 | 11 0.16 0.06-0.33 | 13 0.19 0.08-0.37 |
| D53 Total Anomalous Pulmonary Venous Return | Cases Rate CI | 5 0.08 0.17-0.23 | 5 0.07 0.01-0.22 | 13 0.19 0.08-0.38 | 17 0.25 0.12-0.46 | 13 0.19 0.08-0.37 | 11 0.16 0.06-0.33 | 11 0.16 0.06-0.33 |
| E01 Choanal Atresia | Cases Rate CI | 6 0.09 0.24-0.25 | 10 0.15 0.05-0.33 | 10 0.15 0.05-0.32 | 16 0.24 0.11-0.44 | 6 0.09 0.02-0.23 | 5 0.07 0.02-0.21 | 6 0.09 0.02-0.23 |
| E06 Agenesis of Lung | Cases Rate CI | 25 0.40 0.22-0.67 | 44 0.69 0.45-1.00 | 32 0.48 0.29-0.75 | 42 0.62 0.40-0.92 | 49 0.71 0.47-1.01 | 50 0.73 0.49-1.04 | 26 0.38 0.21-0.61 |
| F01 Cleft Palate | Cases Rate CI | 39 0.63 0.40-0.95 | 46 0.72 0.47-1.04 | 36 0.54 0.33-0.82 | 43 0.64 0.41-0.93 | 38 0.55 0.35-0.82 | 31 0.45 0.27-0.71 | 27 0.39 0.22-0.63 |

(1) See appendix for explanation of the codes/conditions.

CI = Approximate 99% confidence intervals.

“Cases” are the number of live born and still born infants.

Table 3 Continued
Arizona Birth Defects Monitoring Program
Incidence Rates^a Per 1,000 Live Births and Fetal Deaths, Arizona

| CODE/CONDITION (1) | | | | | | | | |
|--|---------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| | | <u>1986</u> | <u>1987</u> | <u>1988</u> | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> |
| F02 Cleft Lip with and without Cleft Palate | Cases Rate CI | 77 1.25 0.91-1.67 | 80 1.25 0.92-1.66 | 91 1.37 1.03-1.79 | 90 1.33 1.00-1.74 | 97 1.40 1.06-1.81 | 80 1.17 0.86-1.55 | 74 1.07 0.78-1.43 |
| F08 Pyloric Stenosis | Cases Rate CI | 108 1.76 1.35-2.25 | 135 2.11 1.67-2.63 | 134 2.03 1.60-2.52 | 122 1.81 1.41-2.27 | 116 1.68 1.30-2.12 | 148 2.16 1.73-2.66 | 137 1.98 1.57-2.46 |
| F09 TE Fistula, or Esophageal Atresia, or both | Cases Rate CI | 19 0.31 0.15-0.54 | 16 0.25 0.11-0.46 | 19 0.28 0.14-0.50 | 18 0.27 0.13-0.48 | 19 0.27 0.14-0.48 | 15 0.22 0.10-0.41 | 14 0.20 0.09-0.39 |
| F14 Stenosis/Atresia of Duodenum | Cases Rate CI | 5 0.08 0.01-0.23 | 15 0.07 0.01-0.22 | 11 0.16 0.06-0.34 | 10 0.15 0.05-0.32 | 10 0.14 0.05-0.31 | 6 0.09 0.02-0.23 | 13 0.19 0.08-0.37 |
| F15 Stenosis/Atresia of Small Intestine | Cases Rate CI | 18 0.29 0.14-0.52 | 12 0.18 0.07-0.37 | 13 0.19 0.08-0.38 | 16 0.24 0.11-0.44 | 16 0.23 0.11-0.43 | 9 0.13 0.05-0.29 | 13 0.19 0.08-0.37 |
| F16 Stenosis/Atresia of Rectum or Anus | Cases Rate CI | 27 0.44 0.25-0.71 | 26 0.40 0.23-0.66 | 27 0.40 0.23-0.66 | 35 0.52 0.32-0.79 | 35 0.51 0.31-0.78 | 38 0.56 0.35-0.83 | 31 0.45 0.27-0.70 |
| F17 Hirschsprung's Disease | Cases Rate CI | 11 0.17 0.07-0.37 | 10 0.15 0.05-0.33 | 10 0.15 0.05-0.32 | 7 0.03 0.03-0.25 | 13 0.19 0.08-0.37 | 13 0.19 0.08-0.37 | 7 0.10 0.03-0.25 |

(1) See appendix for explanation of the codes/conditions

CI = Approximate 99% confidence intervals.

“Cases” are the number of live born and still born infants.

Table 3 Continued
Arizona Birth Defects Monitoring Program
Incidence Rates^a Per 1,000 Live Births and Fetal Deaths, Arizona

| CODE/CONDITION (1) | | | | | | | | |
|---|---------------------|-------------------------|--------------------------|-------------------------|-------------------------|--------------------------|--------------------------|-------------------------|
| | | <u>1986</u> | <u>1987</u> | <u>1988</u> | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> |
| F18 Malrotation of Intestine | Cases Rate CI | 10 0.16 0.06-0.35 | 10 0.15 0.05-0.33 | 16 0.24 0.11-0.44 | 14 0.21 0.09-0.40 | 16 0.23 0.11-0.43 | 14 0.20 0.09-0.39 | 10 0.14 0.05-0.31 |
| F21 Biliary Atresia | Cases Rate CI | 2 0.03 0.00-0.15 | 1 0.01 0.00-0.11 | 3 0.04 0.00-0.16 | 5 0.07 0.02-0.21 | 4 0.06 0.01-0.18 | 6 0.09 0.02-0.23 | 4 0.06 0.01-0.18 |
| H01 Renal Agenesis | Cases Rate CI | 21 0.34 0.18 | 27 0.42 0.24-0.68 | 23 0.34 0.18-0.58 | 43 0.64 0.41-0.93 | 33 0.48 0.29-0.74 | 37 0.54 0.34-0.82 | 33 0.48 0.29-0.74 |
| H06 Obstruction Kidney/Ureter | Cases Rate CI | 37 0.60 0.37-0.91 | 71 1.11 0.80-1.50 | 64 0.97 0.68-1.32 | 90 1.33 1.00-1.74 | 94 1.36 1.02-1.76 | 103 1.50 1.15-1.93 | 73 1.05 0.76-1.42 |
| H09 Bladder or Urethra Obstruction | Cases Rate CI | 8 0.13 0.04-0.30 | 12 0.18 0.07-0.37 | 9 0.13 0.04-0.30 | 7 0.10 0.03-0.25 | 3 0.04 0.00-0.16 | 8 0.12 0.04-0.27 | 7 0.10 0.03-0.25 |
| J03 Dislocation of Hip | Cases Rate CI | 87 1.42 1.05-1.86 | 101 1.58 1.20-2.03 | 68 1.03 1.20-2.03 | 91 1.35 1.01-1.76 | 105 1.52 1.16-1.76 | 103 1.50 1.15-1.93 | 66 0.95 0.68-1.30 |
| J51 Complete absence of upper or lower limb | Cases Rate CI | 2 0.03 0.00-0.15 | 0 0.00 0.00-0.00 | 1 0.01 0.00-0.11 | 3 0.04 0.00-0.16 | 3 0.04 0.00-0.16 | 2 0.03 0.00-0.14 | 1 0.01 0.00-0.11 |

(1) See appendix for explanation of the codes/conditions

CI = Approximate 99% confidence intervals.

“Cases” are the number of live born and still born infants.

Table 3 Continued
Arizona Birth Defects Monitoring Program
Incidence Rates^a Per 1,000 Live Births and Fetal Deaths, Arizona

| CODE/CONDITION (1) | | | | | | | | |
|------------------------------------|---------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| | | <u>1986</u> | <u>1987</u> | <u>1988</u> | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> |
| J52 Phocomelia of limb | Cases Rate CI | 3 0.04 0.00-0.18 | 2 0.03 0.00-0.14 | 2 0.03 0.00-0.14 | 1 0.01 0.00-0.25 | 1 0.01 0.00-0.11 | 1 0.01 0.00-0.11 | 0 0.00 0.00-0.00 |
| K05 Amniotic Bands | Cases Rate CI | 4 0.06 0.01-0.20 | 4 0.06 0.01-0.19 | 9 0.14 0.05-0.32 | 8 0.11 0.04-0.28 | 14 0.20 0.09-0.39 | 10 0.15 0.05-0.31 | 8 0.12 0.04-0.27 |
| N01 Diaphragmatic Hernia | Cases Rate CI | 13 0.21 0.09-0.41 | 18 0.28 0.13-0.50 | 20 0.30 0.15-0.52 | 23 0.34 0.19-0.57 | 28 0.40 0.23-0.65 | 23 0.34 0.18-0.56 | 13 0.19 0.08-0.37 |
| N02 Omphalocele | Cases Rate CI | 10 0.16 0.06-0.35 | 14 0.21 0.09-0.42 | 17 0.25 0.12-0.46 | 10 0.15 0.05-0.32 | 21 0.30 0.16-0.52 | 21 0.31 0.16-0.53 | 10 0.14 0.05-0.31 |
| N04 Gastroschisis | Cases Rate CI | 19 0.31 0.15-0.54 | 18 0.28 0.13-0.50 | 19 0.28 0.14-0.50 | 19 0.28 0.14-0.50 | 21 0.30 0.16-0.52 | 36 0.53 0.33-0.80 | 27 0.39 0.22-0.63 |
| R01 Down Syndrome (Trisomy 21) | Cases Rate CI | 64 1.04 0.73-1.43 | 61 0.95 0.67-1.32 | 74 1.12 0.81-1.50 | 66 0.98 0.70-1.33 | 73 1.05 0.76-1.42 | 84 1.23 0.91-1.62 | 87 1.26 0.94-1.65 |
| R02 Patau Syndrome (Trisomy 13) | Cases Rate CI | 9 0.14 0.05-0.32 | 4 0.06 0.01-0.19 | 3 0.04 0.00-0.16 | 4 0.06 0.01-0.19 | 11 0.16 0.06-0.33 | 6 0.09 0.02-0.23 | 15 0.22 0.10-0.41 |

(1) See appendix for explanation of the codes/conditions

CI = Approximate 99% confidence intervals.

“Cases” are the number of live born and still born infants.

Table 3 Continued
Arizona Birth Defects Monitoring Program
Incidence Rates^a Per 1,000 Live Births and Fetal Deaths, Arizona

| CODE/CONDITION (1) | | | | | | | | |
|--------------------------------------|---------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| | | <u>1986</u> | <u>1987</u> | <u>1988</u> | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> |
| R03 Edwards Syndrome (Trisomy 18) | Cases Rate CI | 11 0.17 0.07-0.37 | 17 0.26 0.12-0.48 | 13 0.19 0.08-0.38 | 10 0.15 0.05-0.32 | 15 0.22 0.10-0.41 | 13 0.19 0.08-0.37 | 12 0.17 0.07-0.35 |
| S02 Fetal Alcohol Syndrome | Cases Rate CI | 9 0.14 0.05-0.32 | 25 0.39 0.21-0.64 | 12 0.18 0.07-0.36 | 21 0.31 0.16-0.53 | 22 0.32 0.17-0.54 | 27 0.39 0.23-0.64 | 33 0.48 0.29-0.74 |

(1) See appendix for explanation of the codes/conditions

CI = Approximate 99% confidence intervals.

Cases are the number of live births and fetal deaths \geq 20 weeks.

^a The rates calculated as the number of live born and still born cases of each defect divided by the denominators consisting of the total live births and still births as follows:

Denominators -

1986= 61,203; 1987= 63,742; 1988= 65,981; 1989= 67,498; 1990= 69,245; 1991= 68,449 ;1992=69,202

Figure 2. Trends of Selected Congenital Anomalies: Incident Rates
(Live Born and Still Born Cases **Per 1,000 Live Births & Fetal Deaths**), Arizona

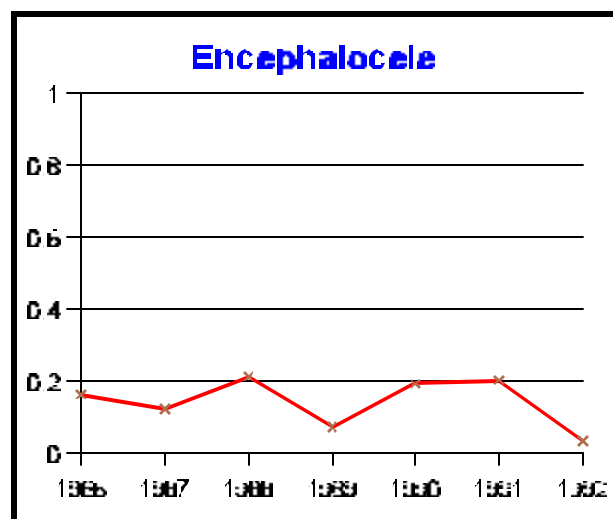
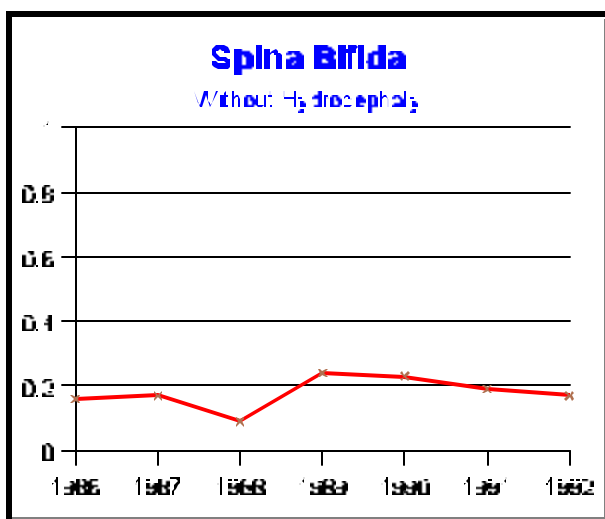
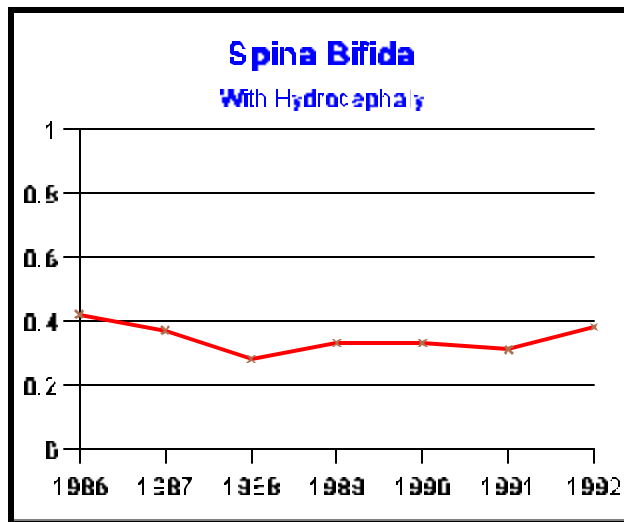
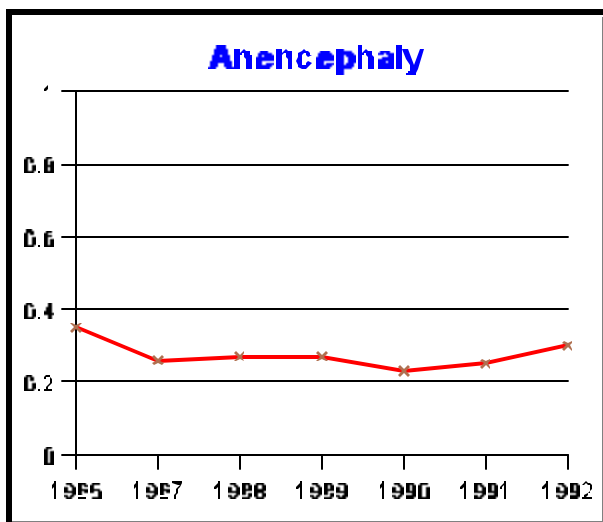


Figure 2 Continued
Trends of Selected Congenital Anomalies: Incident Rates
(Live Born and Still Born Cases Per 1,000 Live Births & Fetal Deaths), Arizona

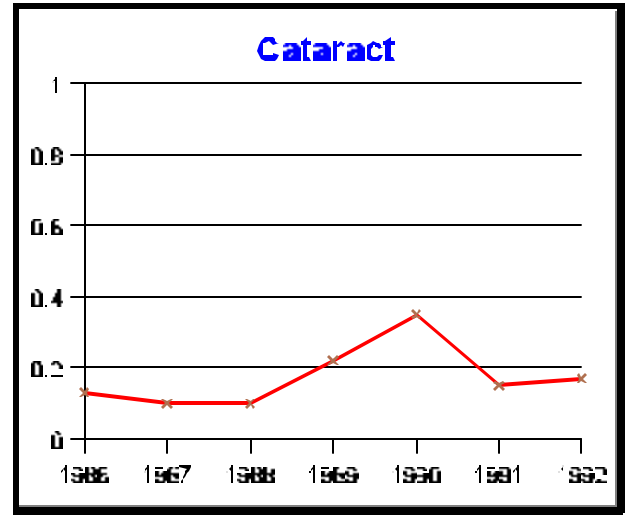
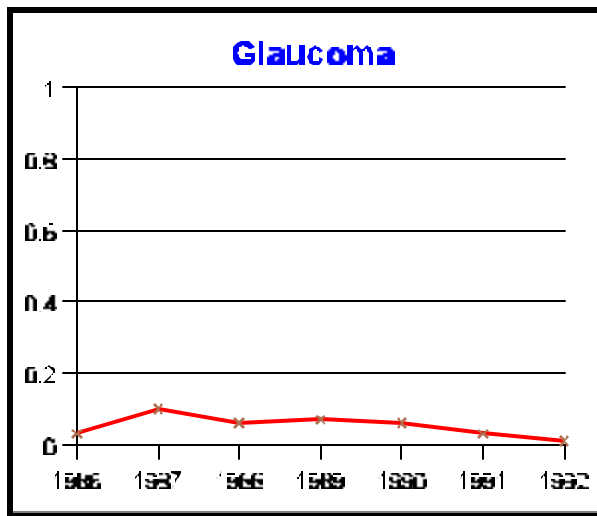
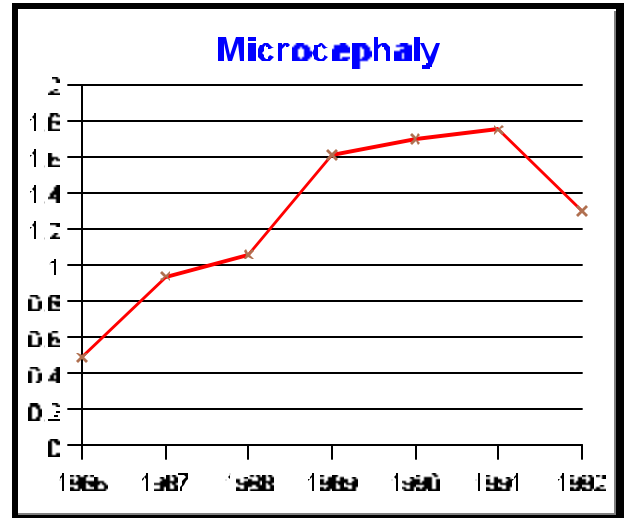
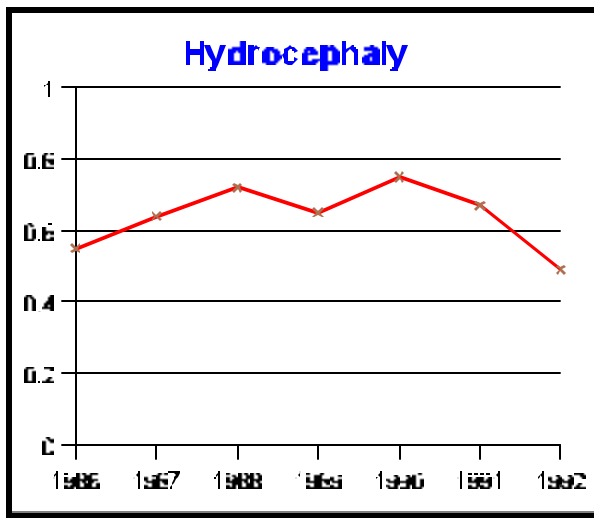


Figure 2 Continued
Trends of Selected Congenital Anomalies: Incident Rates
(Live Born and Still Born Per 1,000 Live Births & Fetal Deaths), Arizona

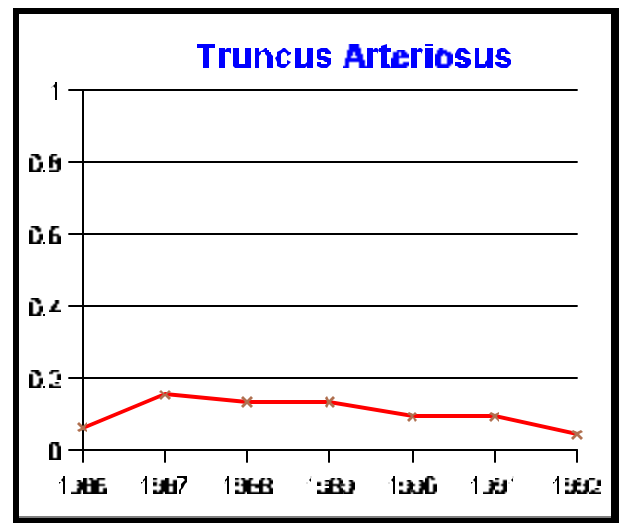
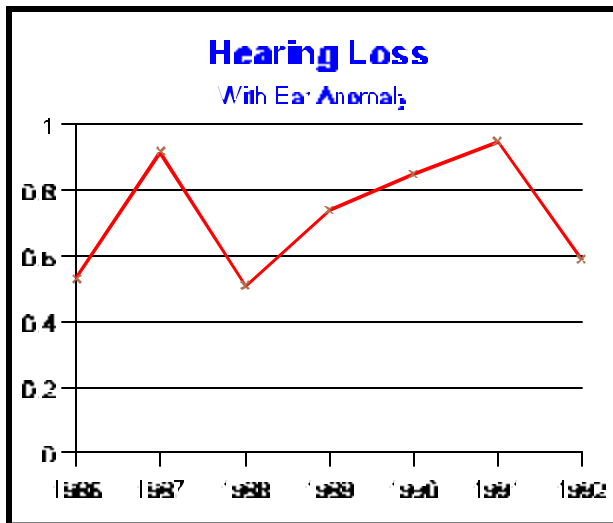
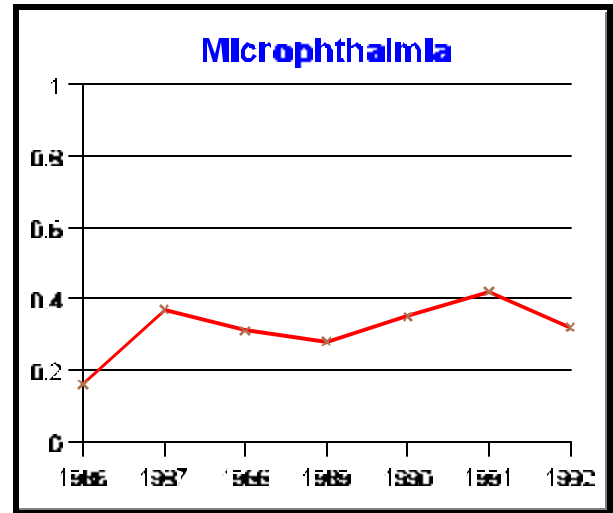
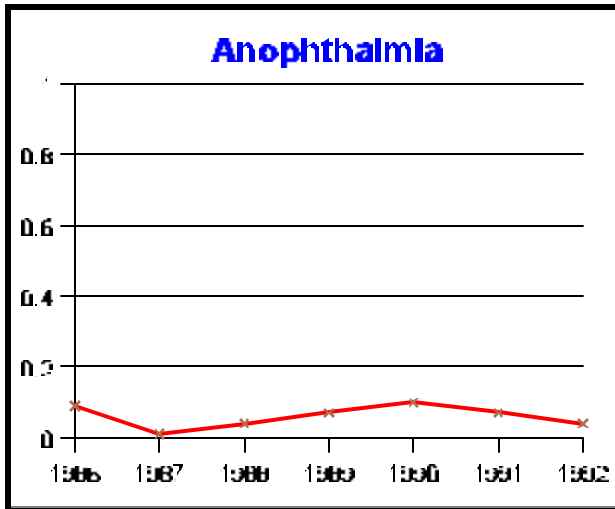


Figure 2 Continued
Trends of Selected Congenital Anomalies: Incident Rates
(Live Born and Still Born Cases Per 1,000 Live Births & Fetal Deaths), Arizona

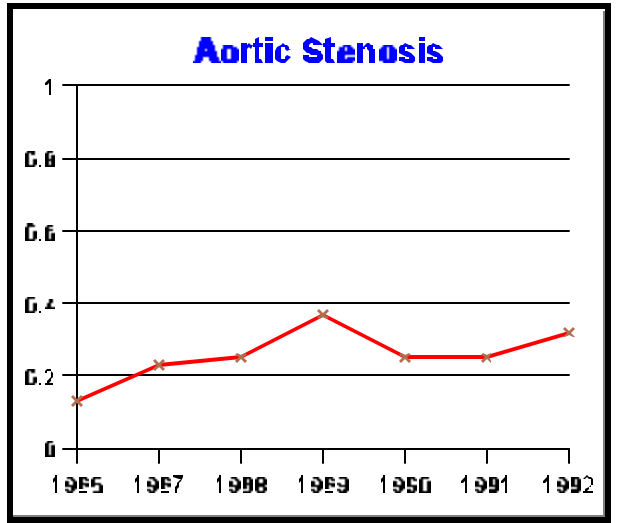
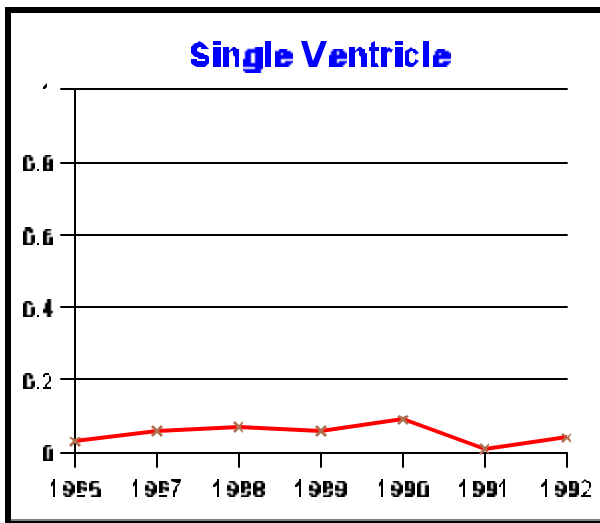
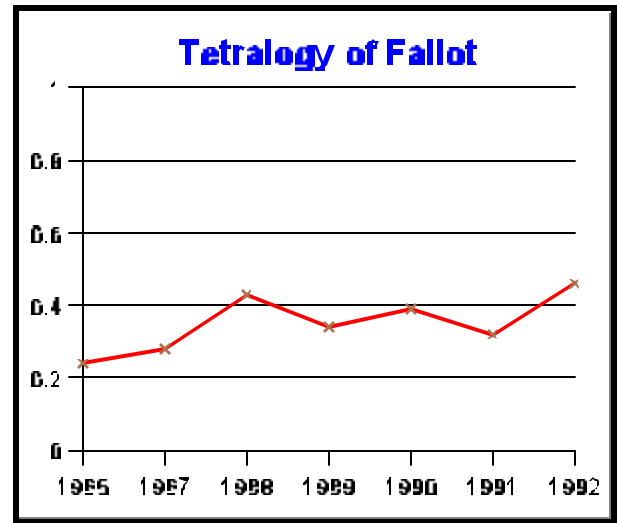
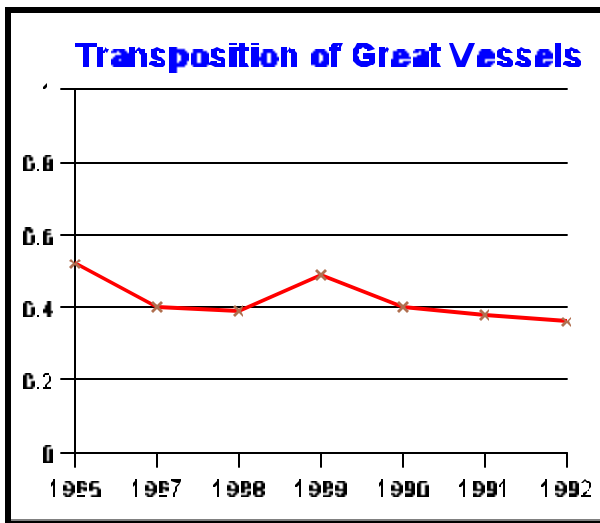


Figure 2 Continued
Trends of Selected Congenital Anomalies: Incident Rates
(Live Born and Still Born Cases Per 1,000 Live Births & Fetal Deaths), Arizona

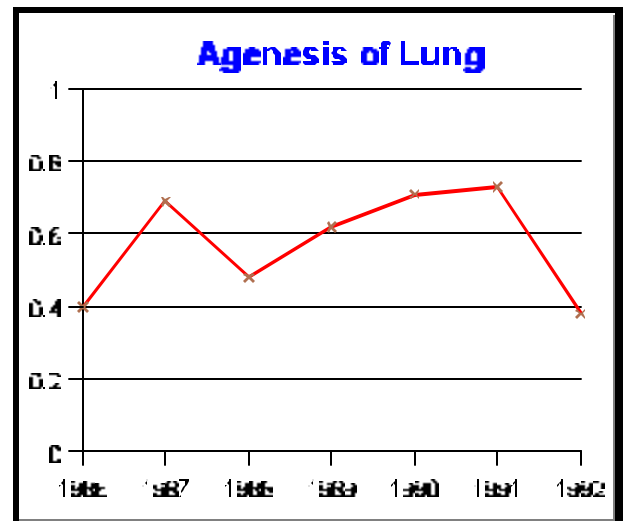
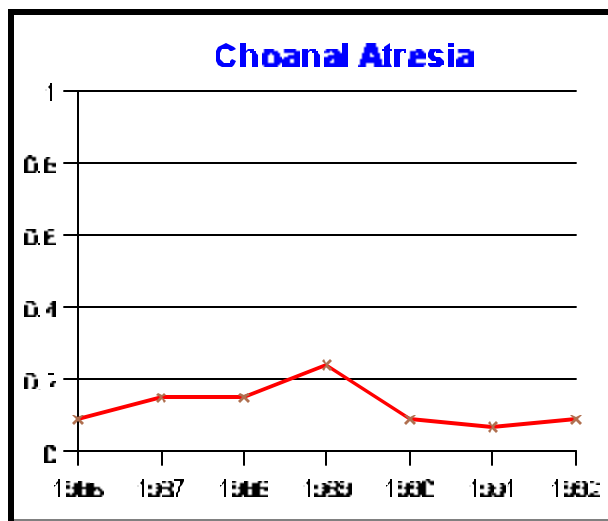
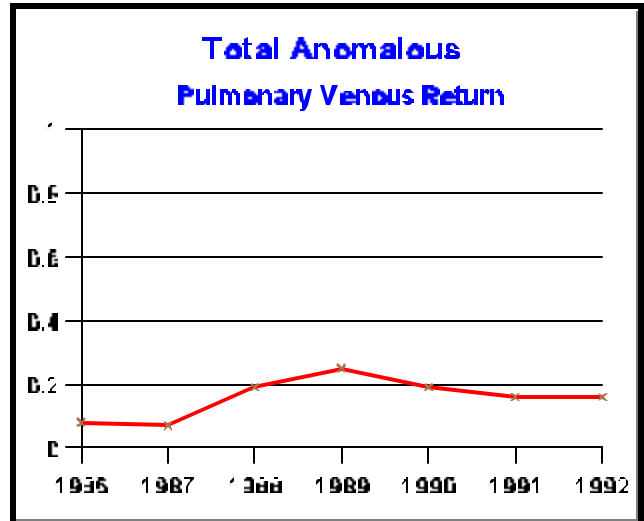
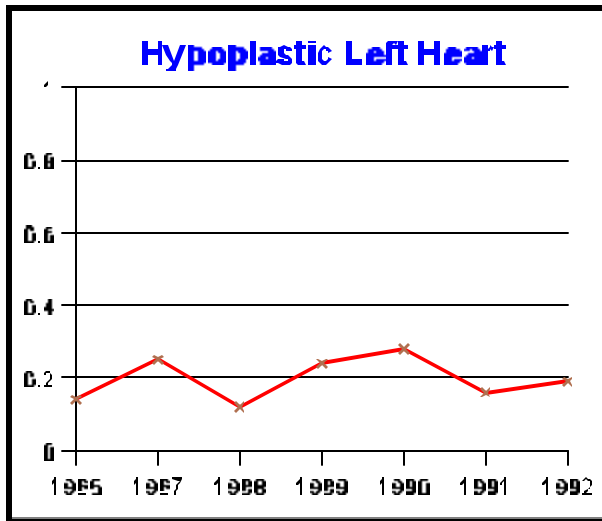


Figure 2 Continued
Trends of Selected Congenital Anomalies: Incident Rates
(Live Born and Still Born Cases Per 1,000 Live Births & Fetal Deaths), Arizona

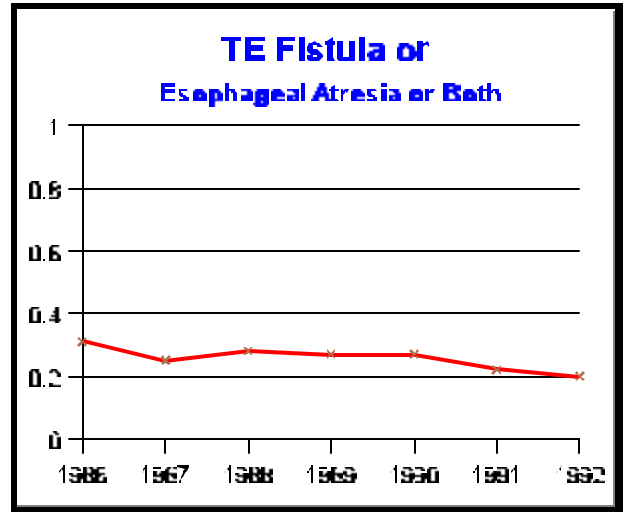
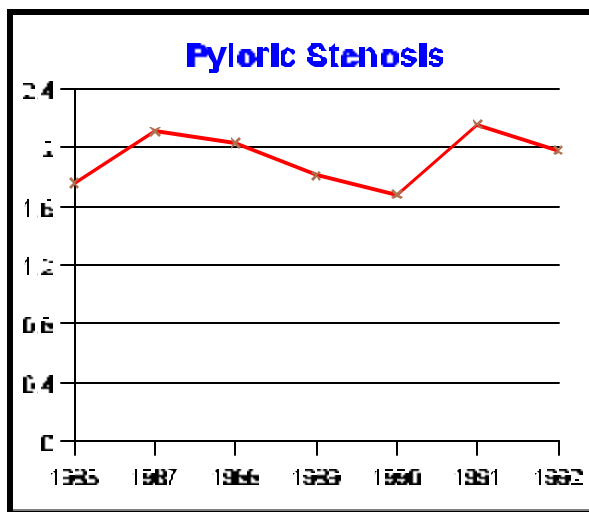
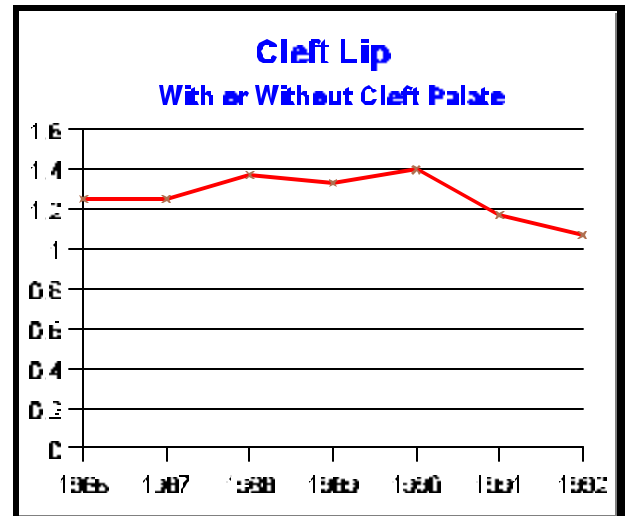
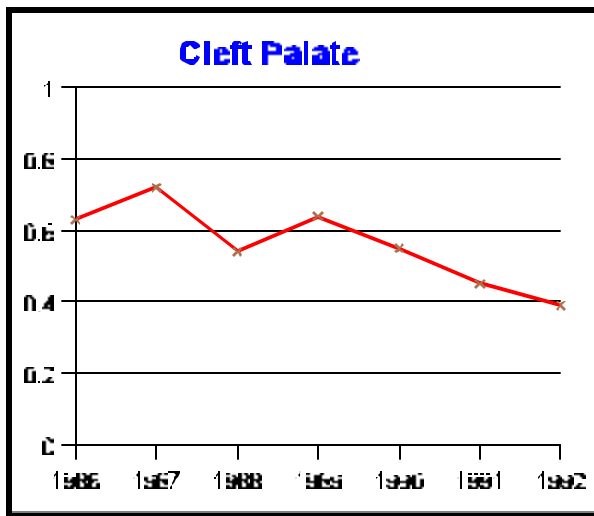


Figure 2 Continued
Trends of Selected Congenital Anomalies: Incident Rates
(Live Born and Still Born Cases Per 1,000 Live Births & Fetal Deaths), Arizona

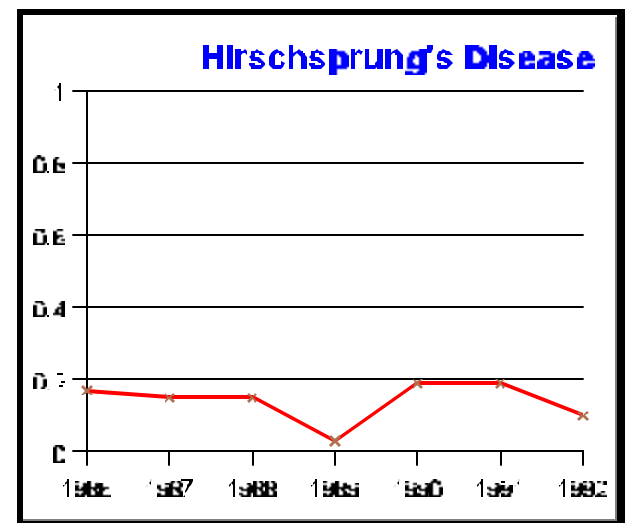
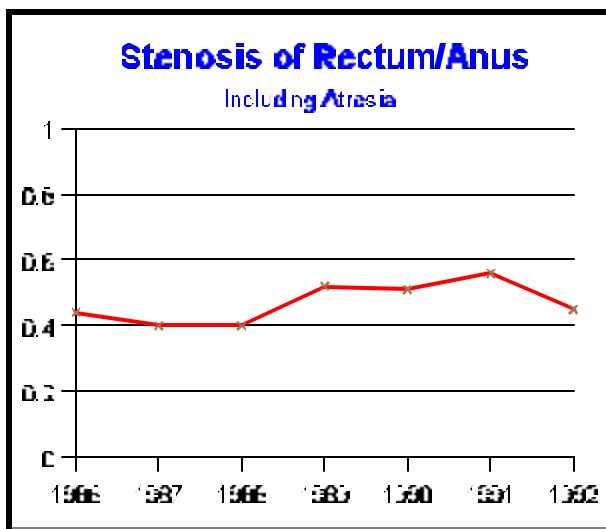
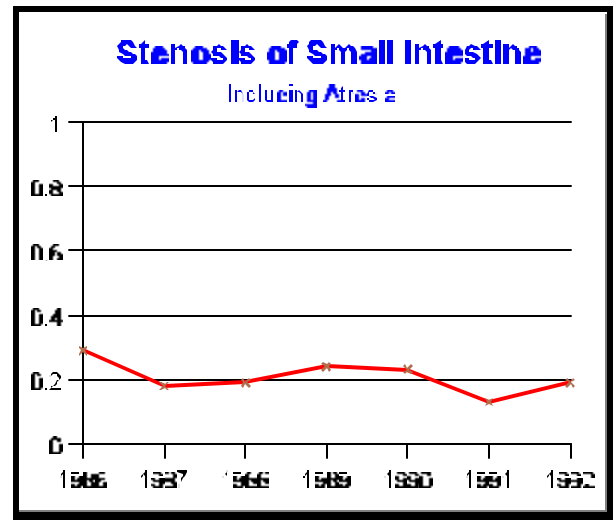
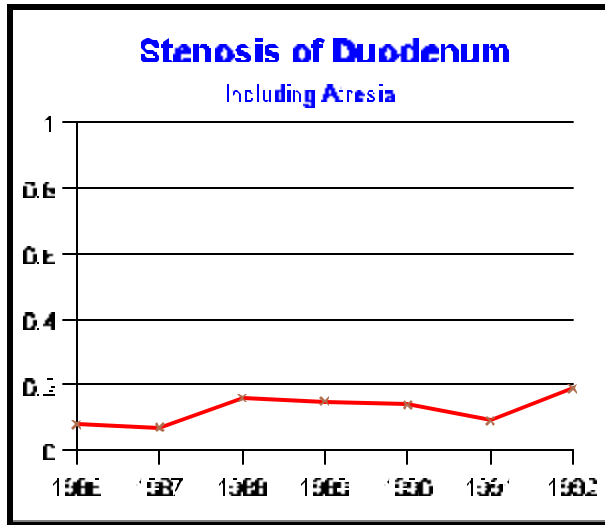


Figure 2 Continued
Trends of Selected Congenital Anomalies: Incident Rates
(Live Born and Still Born Cases Per 1,000 Live Births & Fetal Deaths), Arizona

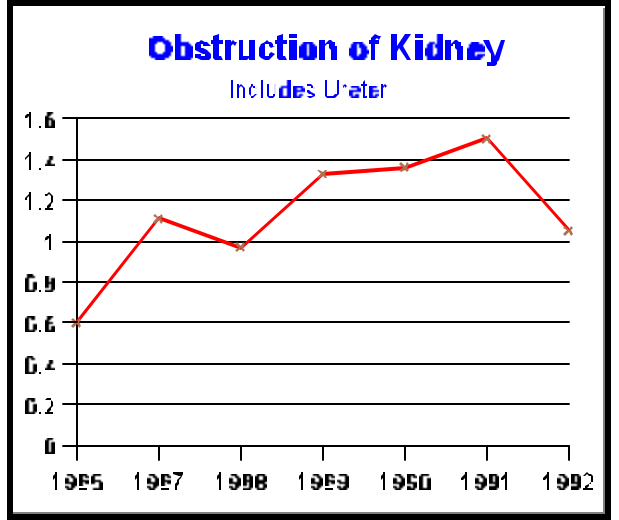
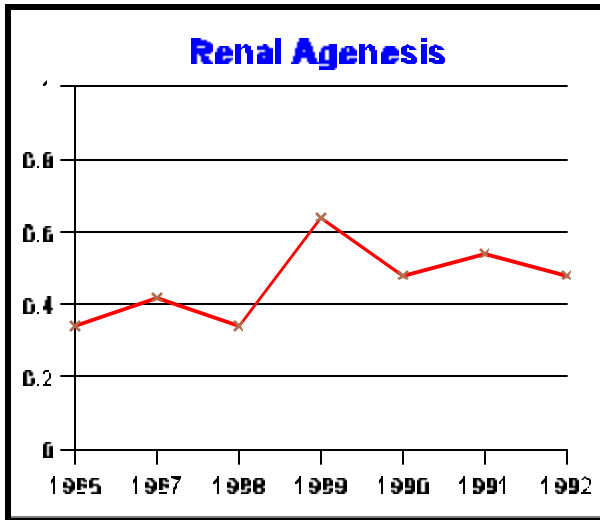
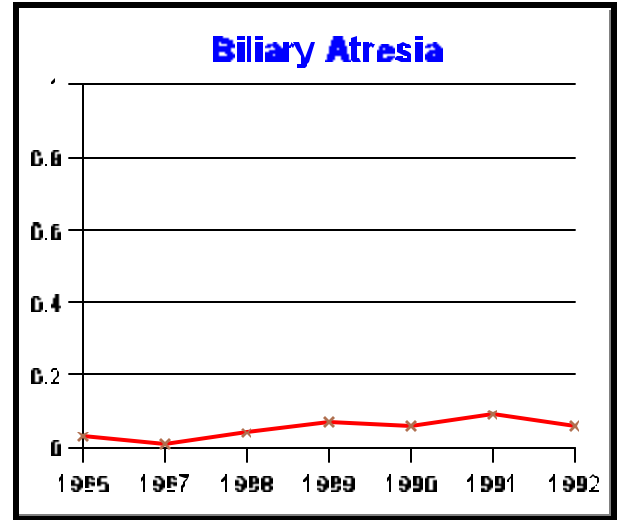
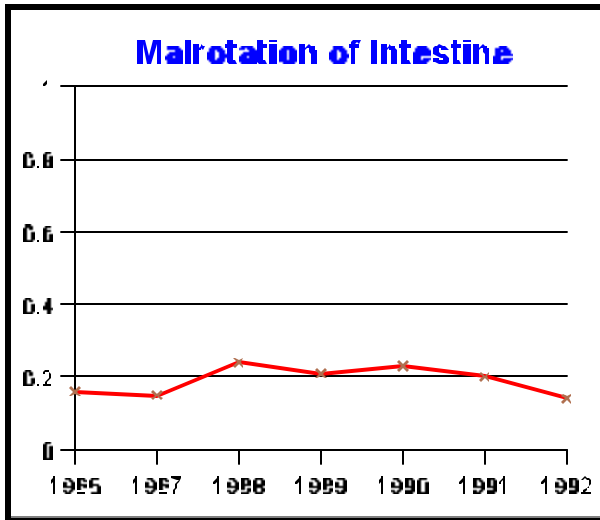


Figure 2 Continued
Trends of Selected Congenital Anomalies: Incident Rates
(Live Born and Still Born Cases Per 1,000 Live Births & Fetal Deaths), Arizona

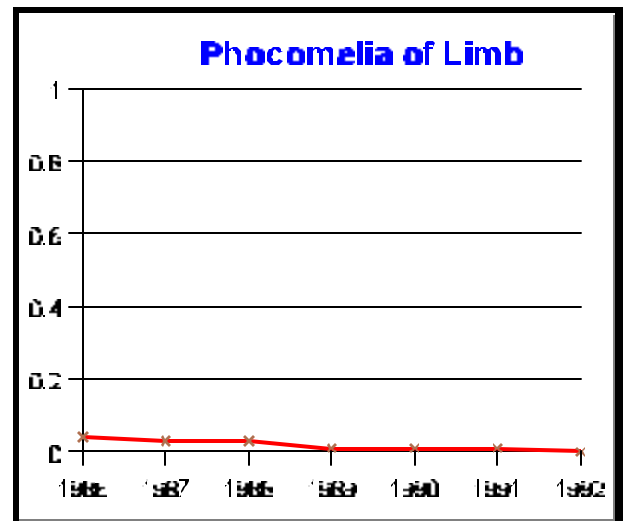
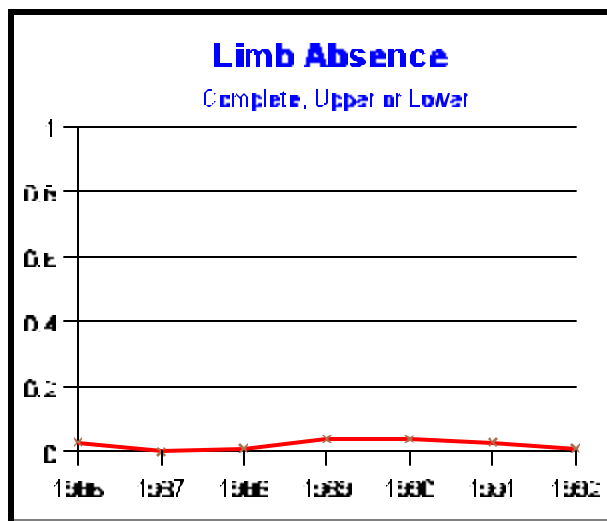
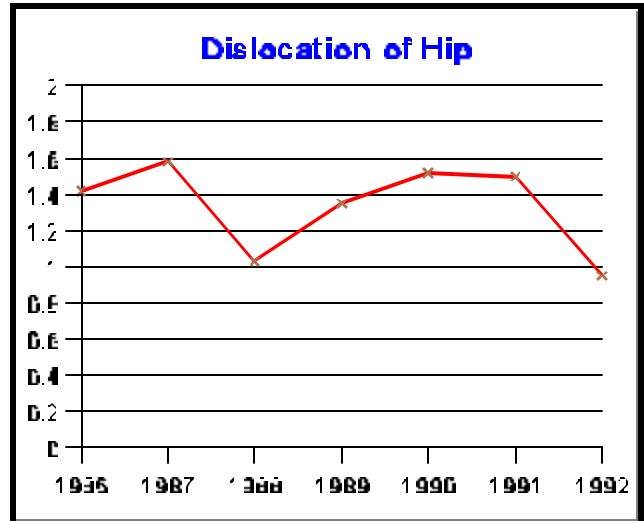
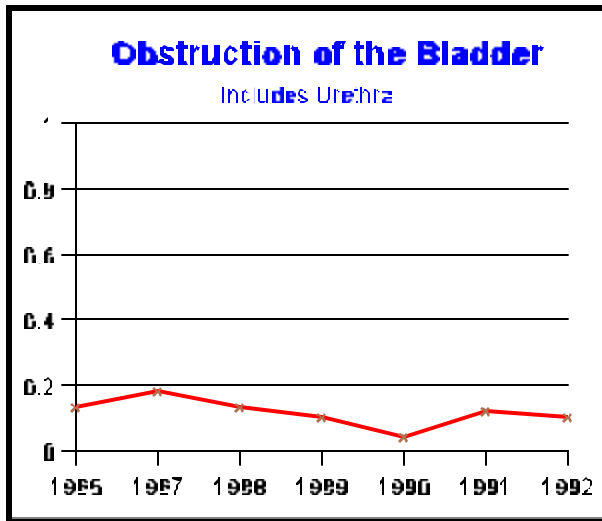


Figure 2 Continued
Trends of Selected Congenital Anomalies: Incident Rates
(Live Born and Still Born Cases Per 1,000 Live Births & Fetal Deaths), Arizona

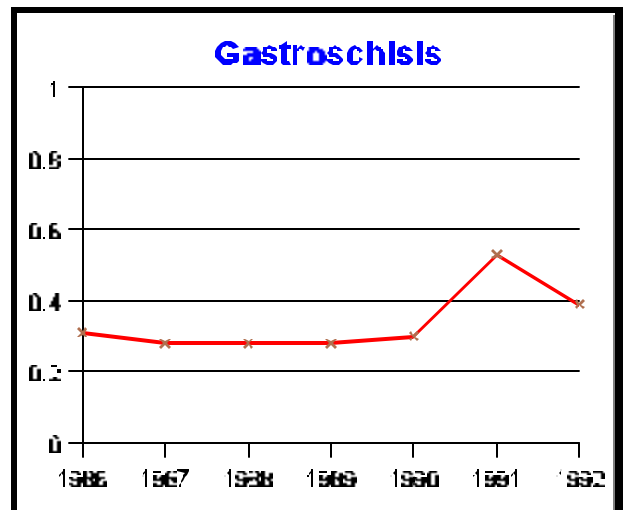
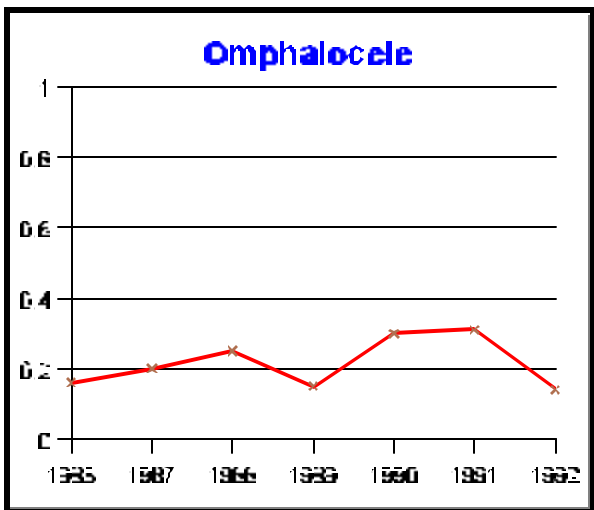
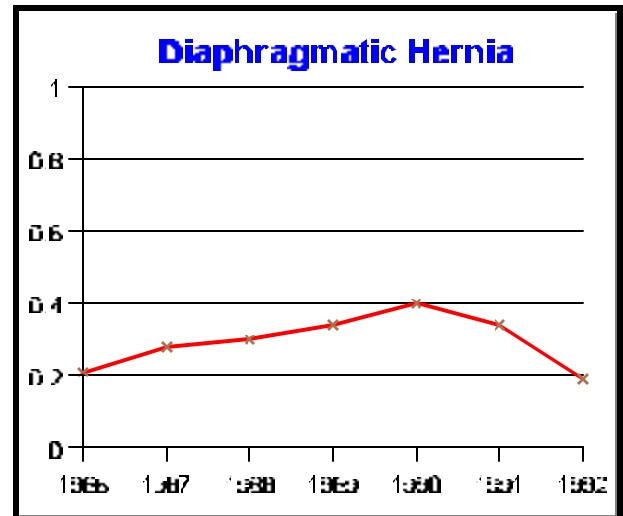
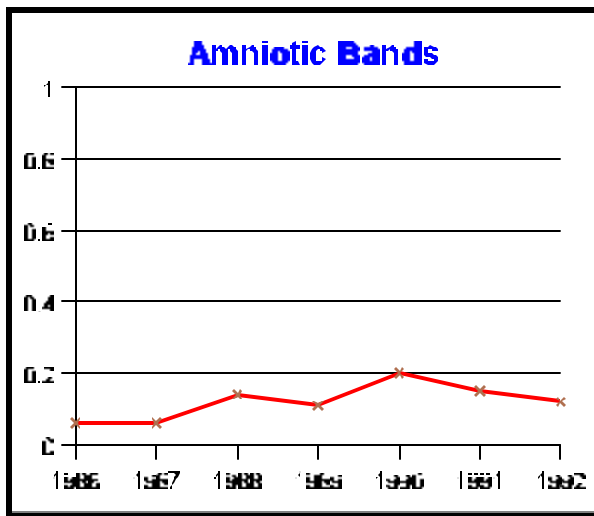
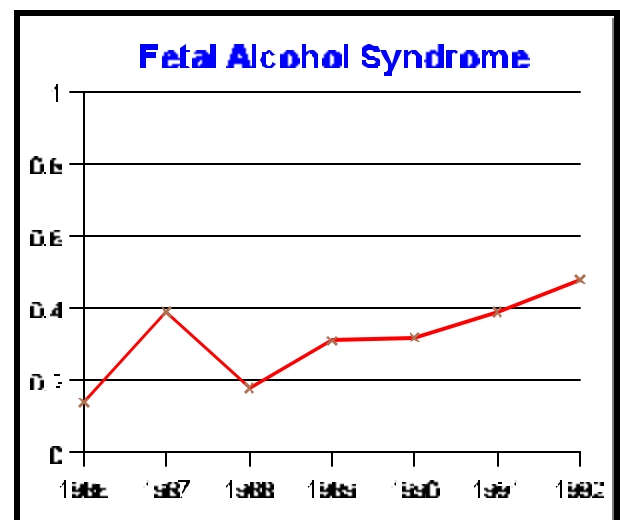
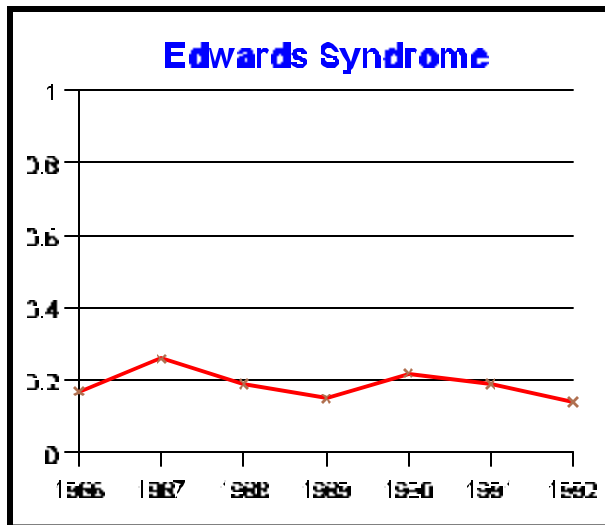
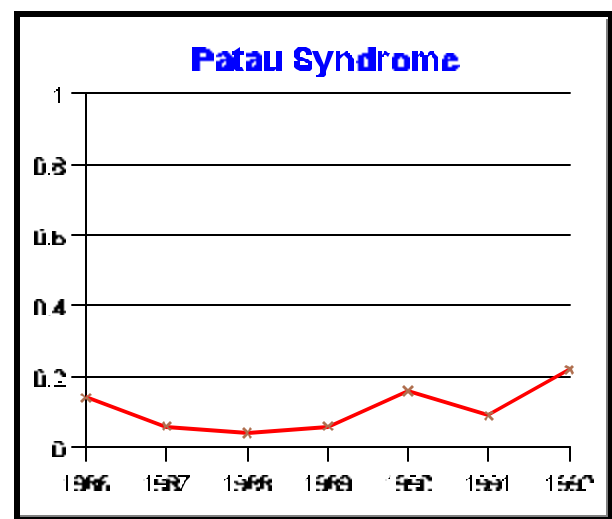
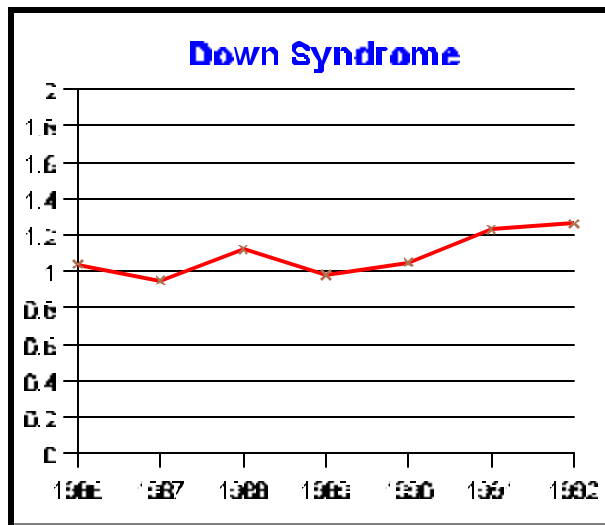


Figure 2 Continued
Trends of Selected Congenital Anomalies: Incident Rates
(Live Born and Still Born Cases Per 1,000 Live Births & Fetal Deaths), Arizona



RACE/ETHNICITY

Race and ethnicity categories were determined from the mother's race and Hispanic origin fields from the child's birth certificate. The Hispanic category consists of mothers who answered 'White' to race and 'Hispanic' to the Hispanic origin question. The remaining race categories are White, Black, Native American, and Other. Because of the small number of specific birth defects among subgroups, the graphs do not show the rates for all of the race/ethnic groups. Table 1 shows the counts used for the calculation of the rate.

Spina Bifida was the most common neural tube defect (NTD) among all races. Rates of Spina Bifida were highest among Hispanics (Figure 3). Many studies have documented that Hispanics have higher rates of Spina Bifida compared to Whites. The same pattern was found in the rates of Anencephaly. The literature also suggests that Blacks experience lower rates of Spina Bifida and Anencephaly compared to Whites.

The incidence of abdominal wall defects are compared among race/ethnic groups (Figure 4). Examining specific defects, we found that rates for Omphalocele were found to be highest among Blacks, relative to Whites and Hispanics. The rate for Gastroschisis, on the other hand is slightly higher among Hispanics. It should be noted however that incidence rates based on less than 10 events are not statistically reliable.

Down Syndrome (Trisomy 21) rates were highest among Native Americans followed by Blacks, then Hispanics and Whites (figure 5).

For Native Americans and Blacks, microcephaly was the most frequently occurring birth defect, while for Whites and Hispanics it was pyloric stenosis (Figures 6 and 7).

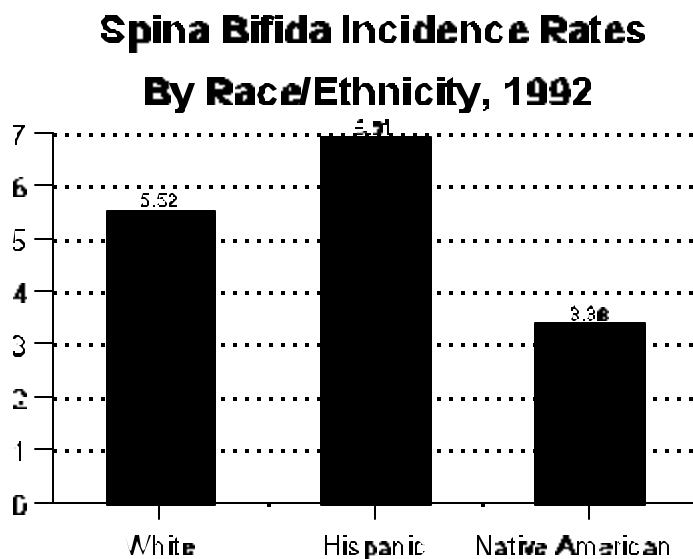


Figure3:Spina Bifida Incidence Rates (Live Born and Still Born Cases Per 10,000 Live Births and Fetal Deaths) by Race/Ethnicity, 1992

Abdominal Wall Defect Incidence Rates by Race/Ethnicity, 1992

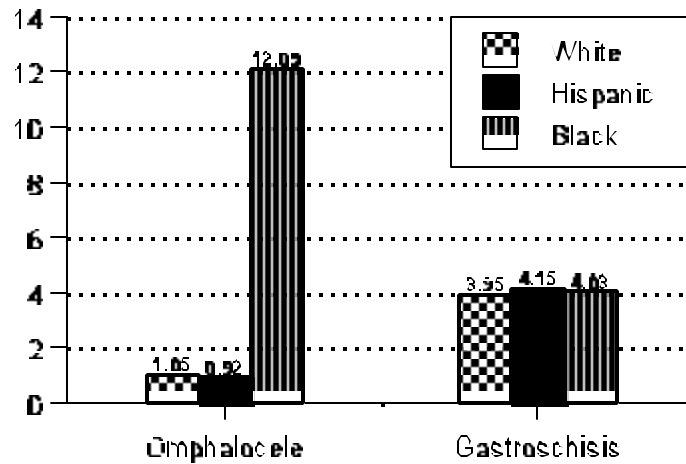


Figure 4. Abdominal Wall Defect Incidence Rates (Live Born and Still Born Cases Per 10,000 Live Births and Fetal Deaths) by Race/Ethnicity, 1992

Down Syndrome Incidence Rates By Race/Ethnicity, 1992

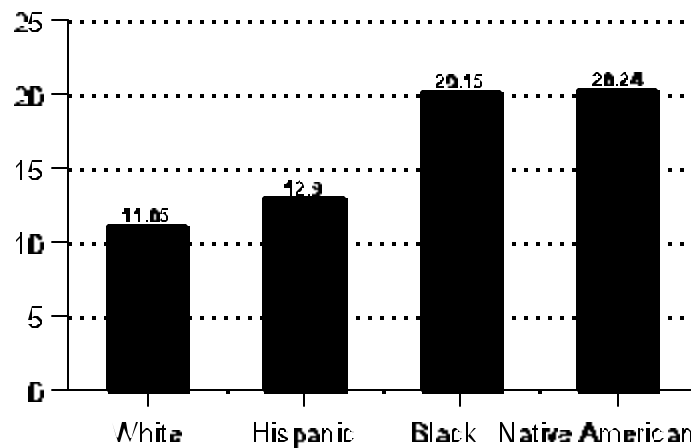


Figure 5.

Down syndrome Incidence Rates (Live Born and Still Born Cases Per 10,000 Live Births and Fetal Deaths) by Race/Ethnicity, 1992

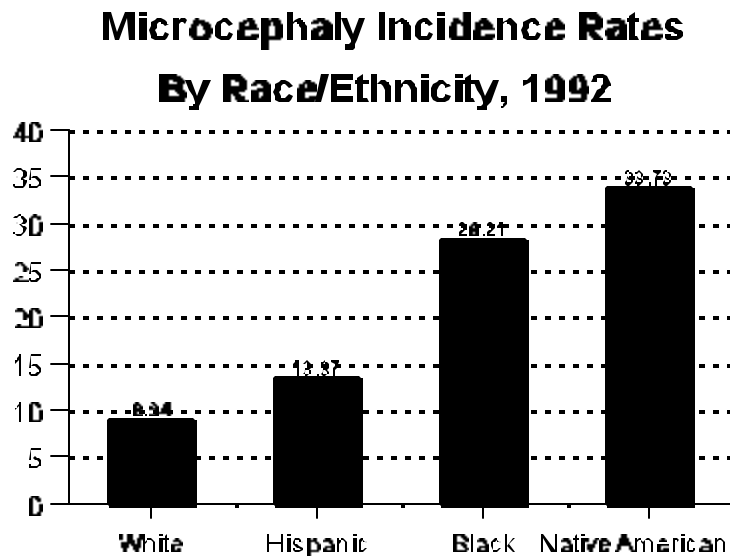


Figure 6. Microcephaly Incidence Rates (Live Born and Still Born Cases Per 10,000 Live Births and Fetal Deaths) by Race/Ethnicity, 1992

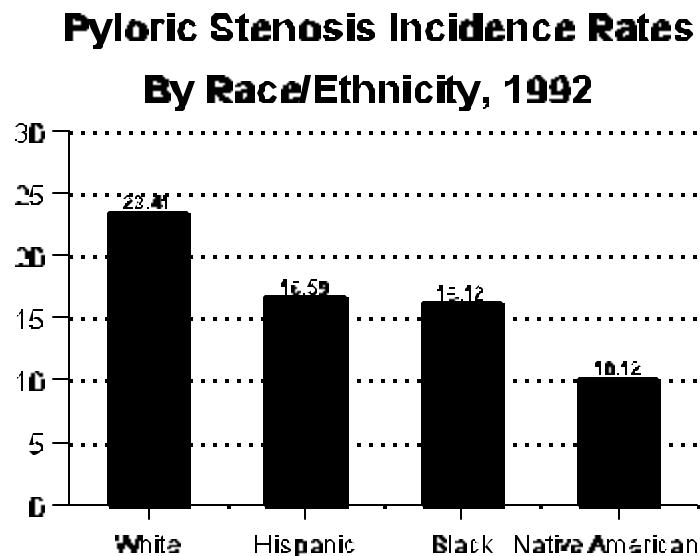


Figure 7. Pyloric Stenosis Incidence Rates (Live Born and Still Born Cases Per 10,000 Live Births and Fetal Deaths) by Race/Ethnicity, 1992

MATERNAL AGE

Maternal age was divided into five age groups. Observed rates of the “44 selected” congenital anomalies were highest among women 35 years of age and older, followed by the less than 20 age group (Figure 8). Down syndrome (Trisomy 21) rates increased with maternal age (Figure 9). In contrast, rates for gastroschisis decreased as maternal age increased (Figure 10).

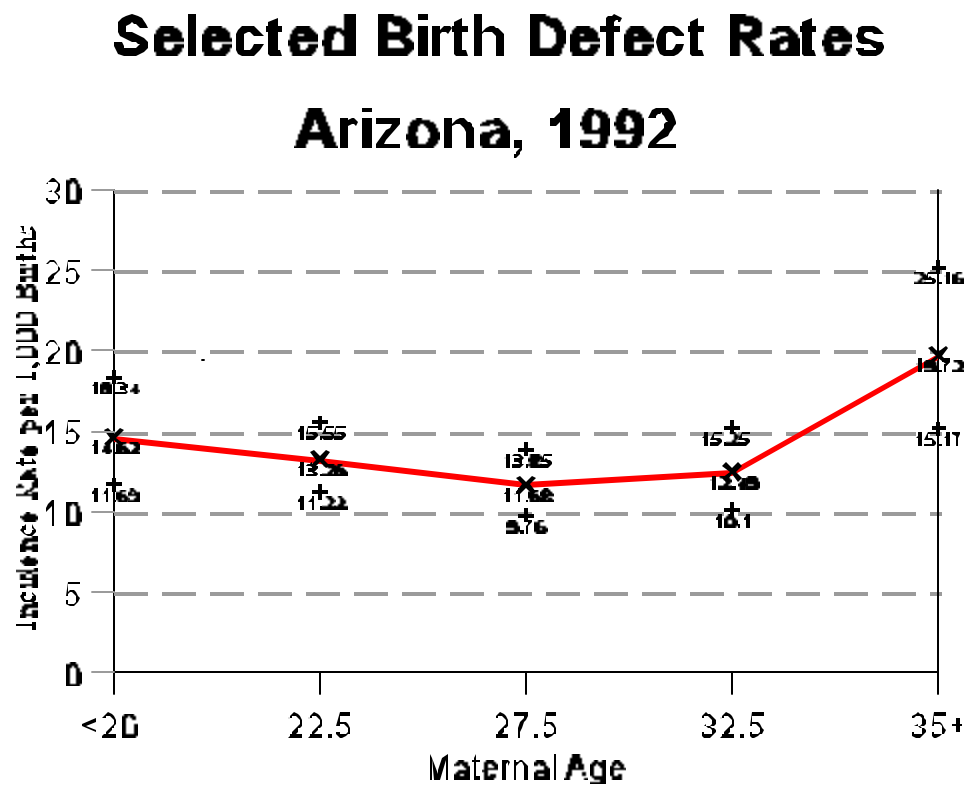


Figure 8. Incidence Rates (Live Born and Still Born Cases Per 1,000 Live Births and Fetal Deaths) for the 44 Selected Defects Listed on Table 1. The + sign indicates the 99% confidence bounds.

Down Syndrome (Trisomy 21) Arizona, 1992

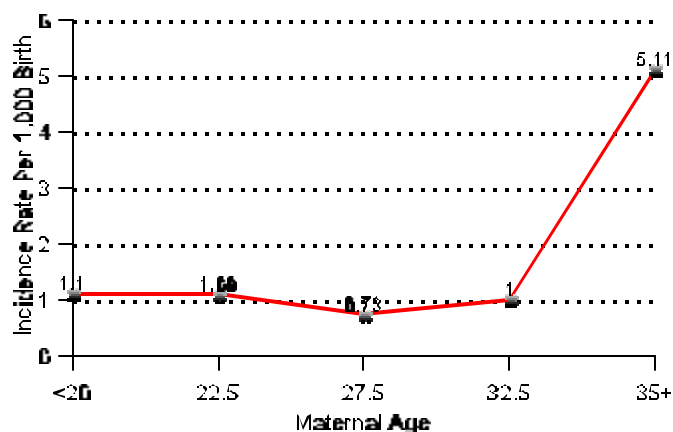


Figure 9. Down Syndrome (Trisomy 21) Rates (Live Born and Still Born Cases Per 1,000 Live Births and Fetal Deaths) by Maternal Age

Gastroschisis Rates By Maternal Age, Arizona, 1992

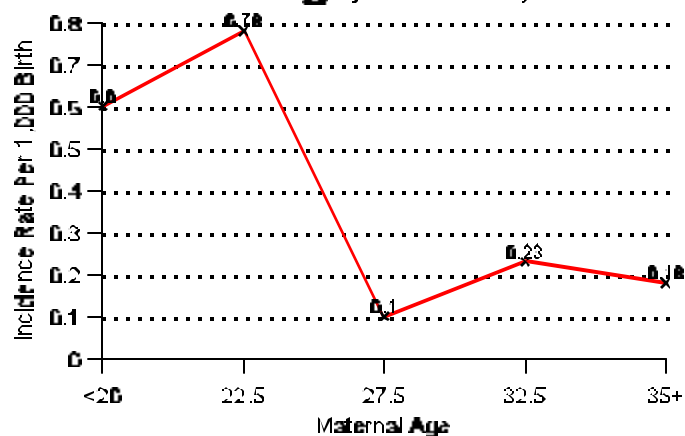


Figure 10. Gastroschisis Rates (Live Born and Still Born Cases Per 1,000 Live Births and Fetal Deaths) by Maternal Age

COUNTY PROFILES

Using County Data

The Arizona Birth Defect Monitoring Program (ABDMP) collects birth defect information from all of Arizona's 15 counties. Multiple years are used to give sufficient data to derive statistical measures at the county level.

Dealing With Small Numbers

Analysis of county data is difficult because of normal fluctuations in rates seen in small populations. When dealing with small numbers, it is normal to see fluctuations over time. These rate fluctuations may cause an area to appear to have a birth defect(s) cluster. Most often this is a statistical anomaly. In the rare case that a cluster results from a teratogen, a dramatic increase in rate of occurrence on the scale of 10-fold or greater is usually seen.¹⁰ Another concern with small numbers is the issue of protecting persons and their family's confidentiality. Thus, all county level data are aggregated. Incidence rates and confidence intervals will only be presented when there are 10 or more cases.

Birth Defects by County

The following tables present birth defects by county of mothers' residence. Table 4 shows the total number of defects for the 44 selected congenital anomalies for each Arizona county. Table 5 examines selected anomalies by race and county. Cases were aggregated for the years 1986 through 1992 to provide large enough numbers for analysis. Gila county had the highest rate of congenital anomalies, whereas Greenlee and La Paz counties had the lowest reported birth defects rates. Data show that there are significant differences in overall rates between Arizona's 15 counties and the state. Five sentinel defects (chromosomal defects, oral clefts, heart defects, abdominal wall defects, and neural tube defects) were examined by county (Tables 6-10).

Table 4
44 Selected Birth Defect Incidence Rates by County 1986-1992
Rates Per 1,000 Live Births

| COUNTY | CASES 1986-1992 | RATE | 99% CONFIDENCE INTERVAL |
|------------|--------------------|-------|----------------------------|
| Apache | 175 | 14.07 | 11.48-17.06 |
| Cochise | 137 | 11.81 | 09.37-14.67 |
| Coconino | 191 | 14.01 | 11.53-16.85 |
| Gila | 75 | 16.34 | 11.88-21.87 |
| Graham | 36 | 11.96 | 7.44-18.14 |
| Greenlee | 5 | - | - |
| Maricopa | 3611 | 13.39 | 12.82-13.98 |
| Mohave | 102 | 10.88 | 08.30-13.98 |
| Navajo | 209 | 15.46 | 12.84-18.44 |
| Pima | 1035 | 13.26 | 12.22-14.36 |
| Pinal | 201 | 13.70 | 11.34-16.40 |
| Santa Cruz | 60 | 12.29 | 8.58-17.01 |
| Yavapai | 111 | 12.95 | 10.00-16.48 |
| Yuma | 222 | 13.74 | 11.48-16.31 |
| La Paz | 13 | 9.57 | 04.08-18.79 |

44 selected birth defects (see Table 1); - =Insufficient cases for rate and confidence interval calculations

Table 5
44 Selected Birth Defects by Race/Ethnicity by County, 1986-1992
Incidence Rates Per 1,000 live births

| COUNTY | WHITE | HISPANIC | BLACK | NATIVE AMERICAN | OTHER |
|------------|----------------------|----------------------|---------------------|----------------------|---------------------|
| | Rate 99% C.I. | Rate 99% C.I. | Rate 99% C.I. | Rate 99% C.I. | Rate 99% C.I. |
| Apache | 1.68 0.69-3.38 | - - | - - | 15.16 12.24-18.53 | - - |
| Cochise | 11.88 8.49-16.13 | 12.22 8.32-17.26 | 9.43 3.47-20.21 | - - | - - |
| Coconino | 9.99 6.86-14.03 | 12.05 5.83-21.85 | - - | 17.81 13.78-22.61 | - - |
| Gila | 9.70 5.01-16.84 | 10.73 4.19-22.27 | - - | 28.91 18.69-42.54 | - - |
| Graham | 8.64 4.07-15.95 | - - | - - | 28.51 12.17-56.01 | - - |
| Greenlee | - - | - - | - - | - - | - - |
| Maricopa | 12.95 12.26-13.68 | 14.35 13.22-15.56 | 11.81 9.61-14.35 | 19.27 15.44-23.73 | 9.23 5.96-13.58 |
| Mohave | 10.31 7.61-13.63 | 12.49 5.11-25.17 | - - | - - | - - |
| Navajo | 11.52 7.45-16.96 | 17.01 7.53-32.66 | - - | 16.98 13.63-20.88 | - - |
| Pima | 12.13 10.77-13.62 | 13.75 12.04-15.62 | 14.42 9.78-20.43 | 20.71 14.84-28.05 | 14.28 7.37-24.78 |
| Pinal | 12.06 8.82-16.05 | 12.96 9.28-17.55 | - - | 22.51 15.01-32-34 | - - |
| Santa Cruz | - - | 13.21 9.10-18.48 | - - | - - | - - |
| Yavapai | 12.96 9.74-16.87 | 14.77 7.14-26.79 | - - | - - | - - |
| Yuma | 11.02 7.81-15.06 | 14.99 11.90-18.61 | - - | - - | - - |
| La Paz | - - | - - | - - | - - | - - |

- =Insufficient cases for rate and confidence interval calculations.

SENTINEL DEFECTS

Tables 6-10 look at the following sentinel defects respectively: chromosomal defects, oral clefts, neural tube defects, abdominal wall defects, and heart defects. These defects were chosen because of their significant public health impact.

Chromosomal Defects

In this section (Table 6) of the report chromosomal defects refers to Down Syndrome, Patau syndrome, and Edwards syndrome. Chromosomal abnormalities include either missing or extra genetic material. They result in various levels of abnormal physical features, structural defects, and mental retardation. The most common chromosomal defect is Down Syndrome. We also know that the risk of a trisomy affected pregnancy increases with maternal age; however, this risk is still relatively low. Recent research also suggests that about 20% of instances of Down Syndrome are paternal in origin.

Oral Clefts

Table 7 presents information on cleft lip and cleft palate. Cleft palate is a failure of the palate to fuse properly, forming a grooved fissure in the roof of the mouth. Cleft lip is a failure of the maxillary and median nasal processes to fuse, forming a fissure in the lip. Babies born with oral clefts require corrective surgery, and may have feeding problems. Mothers who smoke 20 or more cigarettes a day are more than twice as likely to have a baby born with cleft lip and/or cleft palate.¹¹

Heart Defects

This category includes truncus Arteriosus, transposition of great vessels, Tetralogy of Fallot, single ventricle, aortic stenosis, hypoplastic left heart, and total anomalous pulmonary venous (Table 10).

Abdominal Wall Defects

This category includes omphalocele and gastroschisis (Table 9). Gastroschisis is a congenital opening of the abdominal wall, often with protrusion of the intestines. Omphalocele is a membrane-covered protrusion of an abdominal organ through the abdominal wall at the umbilicus. According to a recent study, young mothers are 4 times as likely as women in their late 20s to have a child with gastroschisis.¹² Other risk factors for gastroschisis are maternal use of cocaine, aspirin, amphetamines, and exposure to solvents.

Neural Tube Defects

Anencephaly, spina bifida, and encephalocele make up the neural tube defects (NTDs) presented in Table 8. The two major NTDs are anencephaly and spina bifida. Anencephaly is the absence of the skull, with cerebral hemispheres reduced or completely missing. Spina bifida is a defective closure of the bony encasement of the spinal cord, through which the cord and meninges may or may not protrude. Women who take multivitamins and/or eat a diet rich in folate can significantly reduce their risk of an NTD affected pregnancy.

| FOLATE FACTS |
|---|
| WHAT IS FOLATE? |
| Folate is a B vitamin. It is also called folic acid or folacin. Folate helps your body form red blood cells. It also helps a baby's spine and brain develop before it is born. |
| WHY IS FOLATE IMPORTANT? |
| You need folate in your body before you get pregnant and especially in the first months of pregnancy. This greatly reduces your chance of having a baby with a birth defect of the brain or spine. Folate also reduces your risk of developing heart disease, and possibly certain forms of cancer. |
| HOW DO YOU GET FOLATE? |
| Eat folate-rich foods and take a multivitamin daily. Some foods rich in folate include: orange juice, dried beans, fortified breakfast cereals, broccoli, cauliflower, and corn. |
| HOW MUCH FOLATE? |
| The United States Public Health Service now recommends all women of childbearing age take a supplement containing 0.4 milligrams of folic acid daily. |

Table 6
Chromosomal Defects - Rates by County 1986-1992
Incidence Rate Per 1,000 Live Births

| COUNTY | CASES 1986-1992 | RATE | 99% CONFIDENCE INTERVAL |
|------------|--------------------|------|----------------------------|
| Apache | 22 | 1.77 | 0.95-3.00 |
| Cochise | 19 | 1.64 | 0.83-2.88 |
| Coconino | 19 | 1.39 | 0.71-2.45 |
| Gila | 11 | 2.40 | 0.93-4.97 |
| Graham | 5 | - | - |
| Greenlee | 0 | - | - |
| Maricopa | 336 | 1.25 | 1.08-1.43 |
| Mohave | 10 | 1.07 | 0.39-2.29 |
| Navajo | 24 | 1.78 | 0.92-2.85 |
| Pima | 102 | 1.31 | 1.00-1.68 |
| Pinal | 20 | 1.36 | 0.70-2.37 |
| Santa Cruz | 6 | - | - |
| Yavapai | 11 | 1.28 | 0.50-2.66 |
| Yuma | 17 | 1.05 | 0.51-1.91 |
| La Paz | 3 | - | - |

Chromosomal defects include three-digit codes R01, R02, R03 (see Table 1);
- =Insufficient cases for rate and confidence interval calculations.

Table 7
Oral Clefts - Rates by County 1986-1992
Incidence Rates Per 1,000 Live Births

| COUNTY | CASES 1986-1992 | RATE | 99% CONFIDENCE INTERVAL |
|------------|--------------------|------|----------------------------|
| Apache | 41 | 3.30 | 2.12-4.87 |
| Cochise | 25 | 2.16 | 1.20-3.54 |
| Coconino | 31 | 2.27 | 1.36-3.56 |
| Gila | 14 | 3.05 | 1.35-5.86 |
| Graham | 8 | - | - |
| Greenlee | 0 | - | - |
| Maricopa | 417 | 1.55 | 1.36-1.76 |
| Mohave | 13 | 1.39 | 0.59-2.72 |
| Navajo | 36 | 2.81 | 1.78-4.22 |
| Pima | 129 | 1.65 | 1.30-2.07 |
| Pinal | 30 | 2.04 | 1.21-3.22 |
| Santa Cruz | 11 | 2.25 | 0.88-4.68 |
| Yavapai | 21 | 2.45 | 1.29-4.20 |
| Yuma | 33 | 2.04 | 1.24-3.15 |
| La Paz | 2 | - | - |

Oral Clefts include three-digit codes F01 & F02 (see Table 1); - =Insufficient cases for rate and confidence interval calculations.

Table 8
Neural Tube Defects - Rates by County 1986-1992
Incidence Rates Per 1,000 Live Births

| COUNTY | CASES 1986-1992 | RATE | 99% CONFIDENCE INTERVAL |
|------------|--------------------|------|----------------------------|
| Apache | 8 | - | - |
| Cochise | 6 | - | - |
| Coconino | 6 | - | - |
| Gila | 4 | - | - |
| Graham | 2 | - | - |
| Greenlee | 0 | - | - |
| Maricopa | 201 | 0.74 | 0.62-0.89 |
| Mohave | 7 | - | - |
| Navajo | 16 | 1.18 | 0.56-2.18 |
| Pima | 48 | 0.61 | 0.41-0.88 |
| Pinal | 9 | - | - |
| Santa Cruz | 6 | - | - |
| Yavapai | 7 | - | - |
| Yuma | 15 | 0.93 | 0.42-1.75 |
| La Paz | 3 | - | - |

Neural Tube defects include three-digit codes A01, A02, A03 & A13.
(see Table 1); - =Insufficient cases for rate and confidence interval calculations.

Table 9
Abdominal Wall Defects - Rates by County 1986-1992
Incidence Rates Per 1,000 Live Births

| COUNTY | CASES 1986-1992 | RATE | 99% CONFIDENCE INTERVAL |
|------------|--------------------|------|----------------------------|
| Apache | 3 | - | - |
| Cochise | 3 | - | - |
| Coconino | 4 | - | - |
| Gila | 3 | - | - |
| Graham | 1 | - | - |
| Greenlee | 0 | - | - |
| Maricopa | 129 | 0.48 | 0.38-0.60 |
| Mohave | 7 | - | - |
| Navajo | 7 | - | - |
| Pima | 53 | 0.68 | 0.46-0.96 |
| Pinal | 5 | - | - |
| Santa Cruz | 2 | - | - |
| Yavapai | 6 | - | - |
| Yuma | 8 | - | - |
| La Paz | 0 | - | - |

Abdominal Wall defects include three-digit codes N02 & N04 (see Table 1);
- =Insufficient cases for rate and confidence interval calculations.

Table 10
Heart Defects - Rates by County 1986-1992
Incidence Rates Per 1,000 Live Births

| COUNTY | CASES 1986-1992 | RATE | 99% CONFIDENCE INTERVAL |
|------------|--------------------|------|----------------------------|
| Apache | 15 | 1.42 | 0..65-2.68 |
| Cochise | 14 | 1.21 | 0.53-2.32 |
| Coconino | 15 | 1.10 | 0.50-2.07 |
| Gila | 10 | 2.18 | 0.80-4.67 |
| Graham | 3 | - | - |
| Greenlee | 1 | - | - |
| Maricopa | 391 | 1.45 | 1.27-1.65 |
| Mohave | 8 | - | - |
| Navajo | 26 | 1.92 | 1.09-3.13 |
| Pima | 118 | 1.51 | 1.18-1.91 |
| Pinal | 19 | 1.30 | 0.66-2.28 |
| Santa Cruz | 6 | - | - |
| Yavapai | 17 | 1.98 | 0.96-3.60 |
| Yuma | 23 | 1.42 | 0.77-2.39 |
| La Paz | 0 | - | - |

Heart defects include three-digit codes D01, D02, D03, D04, D51, D52 & D53 (see Table 1); - =Insufficient cases for rate and confidence interval calculations.

APPENDIX 1

Conditions Included in the Figures

A general listing of all conditions used to establish the rates shown in the figures in this report is shown below. Some specific inclusions and exclusions are not listed. As mentioned above, ABDMP collects data on 140 conditions or variations of conditions. The conditions listed below include over 99% of all cases reported through ABDMP.

| <u>BPA 3-Digit Code*</u> | <u>General Code Descriptor</u> |
|--------------------------|--|
| 740 - 759 | “Congenital Anomalies” Including but not limited to: |
| 740 | Anencephaly and similar anomalies |
| 741 | Spina Bifida |
| 742 | Other Anomalies of the Nervous System |
| 743 | Anomalies of the eye |
| 744 | Anomalies of the ear, face, and neck |
| 745 | Certain anomalies of the heart |
| 746 | Other anomalies of the heart |
| 747 | Anomalies of the circulatory system |
| 748 | Anomalies of the respiratory system |
| 749 | Cleft palate and cleft lip |
| 750 | Other anomalies of the upper alimentary tract |
| 751 | Anomalies of the digestive system |
| 752 | Anomalies of the genital organs |
| 753 | Anomalies of the urinary system |
| 754 | Certain musculoskeletal deformities |
| 755 | Other anomalies of limbs |
| 756 | Other musculoskeletal anomalies |
| 757 | Congenital anomalies of the integument |
| 758 | Chromosomal anomalies |
| 759 | Other and unspecified anomalies |
| <u>ICD-9-CM Code**</u> | |
| 658.80-658.83 | Amniotic bands |
| 760.71 | Fetal alcohol syndrome |

* British Pediatric Association Classification of Diseases

** International Classification of Disease - 9th Edition, Clinical Modification

APPENDIX 2

Conditions Shown in the Tables

A listing of the conditions analyzed in the Tables contained in this report is shown below.

The 44 conditions listed here can be described almost completely by codes created by the Centers for Disease Control's Metropolitan Atlanta Congenital Defects Program (MACDP). These codes are listed in the left below, with exceptions noted. On the right below are the corresponding British Pediatric Association (BPA) Classification of Diseases codes.

In the Tables, a case is listed only once in each MACDP code category, even when it has more than one diagnosis from the category.

| MACDP Code | Condition | BPA Code | | |
|-------------------------------|-----------------------------------|----------|---------|---------|
| <u>CENTRAL NERVOUS SYSTEM</u> | | | | |
| A01 | Anencephaly | 740.00 | 740.02 | 740.03 |
| | | 740.08 | 740.10 | 740.20 |
| | | 740.21 | 740.29 | |
| A02 | Spina Bifida with Hydrocephaly | 741.00 | 741.01 | 741.02 |
| | | 741.03 | 741.04 | 741.05 |
| | | 741.06 | 741.07 | 741.08 |
| | | 741.09 | 741.085 | 741.086 |
| | | 741.087 | | |
| A03 | Spina Bifida without Hydrocephaly | 741.90 | 741.91 | 741.92 |
| | | 741.93 | 741.94 | 741.98 |
| | | 741.985 | 741.99 | |
| A13 | Encephalocele | 742.00 | 742.08 | 742.09 |
| | | 742.085 | 742.086 | |
| A15 | Hydrocephaly | 742.30 | 742.31 | 742.38 |
| | | 742.39 | | |
| A16 | Microcephaly | 742.10 | | |

EYE AND EAR

| | | | | |
|------|-------------------------------|--------|---------|---------|
| B03 | Glaucoma | 743.20 | 743.21 | 743.22 |
| B04 | Cataract | 743.32 | 743.325 | 743.326 |
| B51* | Anophthalmia | 743.00 | | |
| B52* | Microphthalmia | 743.10 | | |
| B54* | Ear anomaly with hearing loss | 744.00 | 744.01 | 744.02 |
| | | 744.03 | 744.09 | 744.21 |

CARDIAC

| | | | | |
|------|---|--------|--------|--------|
| D01 | Truncus Arteriosus | 745.00 | 745.01 | |
| D02 | Transposition of great vessels | 745.10 | 745.11 | 745.12 |
| | | 745.18 | 745.19 | |
| D03 | Tetralogy of Fallot | 745.20 | 745.21 | 746.84 |
| D04 | Single ventricle | 745.30 | | |
| D51* | Aortic stenosis | 746.30 | 746.31 | |
| D52* | Hypoplastic left heart | 746.70 | | |
| D53* | Total anomalous pulmonary venous return | 747.42 | | |

RESPIRATORY

| | | | | |
|-----|------------------|--------|--------|--|
| E01 | Choanal atresia | 748.00 | | |
| E06 | Agenesis of lung | 748.50 | 748.51 | |

OROFACIAL - GASTRO-INTESTINAL

| | | | | |
|-----|--|--------|--------|--------|
| F01 | Cleft palate | 749.00 | 749.01 | 749.02 |
| | | 749.03 | 749.04 | 749.05 |
| | | 749.06 | 749.07 | 749.09 |
| F02 | Cleft lip with or without cleft palate | 749.10 | 749.11 | 749.12 |
| | | 749.19 | 749.20 | 749.21 |
| | | 749.22 | 749.29 | |

| | | | | |
|-----|---|---------|---------|--------|
| F08 | Pyloric Stenosis | 750.51 | | |
| F09 | Tracheo-esophageal fistula or esophageal atresia | 750.30 | 750.31 | 750.32 |
| | | 750.325 | 750.33 | |
| F14 | Stenosis or atresia of duodenum | 751.10 | | |
| F15 | Other stenosis or atresia of small intestine | 751.11 | 751.12 | 751.19 |
| F16 | Stenosis or atresia of rectum or anus | 751.21 | 751.22 | 751.23 |
| | | 751.24 | | |
| F17 | Hirschsprung's Disease | 751.30 | 751.31 | 751.32 |
| | | 751.33 | | |
| F18 | Malrotation of intestine | 751.40 | 751.41 | 751.42 |
| | | 751.49 | 751.495 | |
| F21 | Biliary atresia | 751.65 | | |

GENITO-URINARY

| | | | | |
|-----|---------------------------------|---------|--------|--------|
| H01 | Renal agenesis | 753.00 | 753.01 | |
| H06 | Obstruction of kidney or ureter | 753.20 | 753.21 | 753.22 |
| | | 753.29 | 753.40 | 753.42 |
| H09 | Bladder or urethra obstruction | 753.600 | 753.61 | 753.62 |
| | | 753.63 | | |

MUSCULOSKELETAL

| | | | | |
|------|--|---------|---------|---------|
| J03 | Dislocation of hip | 754.30 | | |
| J51* | Complete absence of upper or lower limb | 755.20 | 755.30 | 755.40 |
| J52* | Phocomelia of Limb | 755.21 | 755.31 | 755.41 |
| K05 | Amniotic bands | 658.80 | | |
| N01 | Diaphragmatic hernia | 756.61 | 756.615 | 756.616 |
| | | 756.617 | | |

| | | |
|-----|-------------|--------|
| N02 | Omphalocele | 756.70 |
|-----|-------------|--------|

| | | |
|-----|---------------|--------|
| N04 | Gastroschisis | 756.71 |
|-----|---------------|--------|

SYNDROMES

| | | | | |
|-----|----------------------------|--------|--------|--------|
| R01 | Down Syndrome (Trisomy 21) | 758.00 | 758.01 | 758.02 |
|-----|----------------------------|--------|--------|--------|

| | | | | |
|--|--|--------|--------|--------|
| | | 758.03 | 758.04 | 758.09 |
|--|--|--------|--------|--------|

| | | | | |
|-----|-----------------------------|--------|--------|--------|
| R02 | Patau Syndrome (Trisomy 13) | 758.10 | 758.11 | 758.12 |
|-----|-----------------------------|--------|--------|--------|

| | | | | |
|--|--|--------|--------|--|
| | | 758.13 | 758.19 | |
|--|--|--------|--------|--|

| | | | | |
|-----|-------------------------------|--------|--------|--------|
| R03 | Edwards Syndrome (Trisomy 18) | 758.20 | 758.21 | 758.22 |
|-----|-------------------------------|--------|--------|--------|

| | | | | |
|--|--|--------|--------|---------|
| | | 758.23 | 758.29 | 758.295 |
|--|--|--------|--------|---------|

| | | | | |
|-----|------------------------|--------|---------|--|
| S02 | Fetal Alcohol Syndrome | 760.71 | 760.718 | |
|-----|------------------------|--------|---------|--|

* Codes created by CBDMP

APPENDIX 3

PRECISION (of diagnosis)

(Box 32

FORM 01)

Code

- 1 Not stated (For Mental Retardation and Cerebral Palsy Diagnoses ONLY - Form 03)
- 2 Probably not a birth defect ("Ruled out" included in this category), "NO"
- 3 "vs" (versus) or "or"
- 4 "Rule out" included in diagnosis (i.e., rule out anencephaly), "Doubtful," "Equivocal", "Questionable," "R/O"
- 5 "Suggestive of"
- 6 "Suspected," "suspicious"
- 7 "Possible," "may have," "could be," "felt to be," "Perhaps," "consider"
- 8 "Consistent with," "most likely"
- 9 "Compatible with," "like," "appears"
- 10 "Probable," "presume"
- 11 -----
- 12 Precise diagnosis, "characteristic of"
- 13 Precise diagnosis with congestive heart failure or medicated with Digoxin, Drisdol, Chlorothiazide, Lasix, Lanoxin, Aldactone or diuretics (only for VSD, PDA, ASD, or Patent Foramen Ovale)

APPENDIX 4

Abbreviations

| | |
|-------|---|
| ABDMP | - Arizona Birth Defects Monitoring Program |
| ADHS | - Arizona Department of Health Services |
| BPA | - British Pediatric Association |
| CBDMP | - California Birth Defects Monitoring Program |
| CDC | - Centers for Disease Control and Prevention |
| CRS | - Children's Rehabilitative Services (ADHS) |
| ICD | - International Classification of Disease |
| MACDP | - Metropolitan Atlanta Congenital Defects Program |

APPENDIX 5

Exclusion List - ABDMP Non-reportable Birth Defects Cases

The following potential cases are not included in the ABDMP report for 1992:

- ! Duplicate abstracts and/or duplicated anomalies (cases with multiple abstracts; child seen at more than one facility), i.e., duplicate cases are merged and counted once.
- ! “Possibles” abstracted for review and consideration and subsequently determined to have conditions or defects that were not reportable - referring to CDC and CBDMP list of `excludables.
- ! Babies born to mothers whose residence is out-of-state or out-of-country (i.e., nonresident cases).
- ! “Negatives,” that is, of cases ruled-out during case finding and medical record review.
- ! “No Match” cases: Birth Certificate was not on file and state of birth cannot be confirmed as Arizona.
- ! Cases among aborted fetuses less than 20 weeks gestation and weighing less than 500 grams. These cases were excluded because there is no reliable denominator that can be used to generate a birth defect rate.
- ! Prenatally diagnosed cases that have not resulted in a live birth or stillbirth are not included. The ABDMP is not currently visiting prenatal diagnostic centers to identify cases.
- ! Defects with a “precision of diagnosis” code 1-7 are excluded. Only those defects diagnosed at the higher levels of precision (8 or above) are included. Refer to Appendix 3 for list of Precision of Diagnosis codes.
- ! Cases only diagnosed outside of the hospital setting are not included in the ABDMP.

APPENDIX 6

References

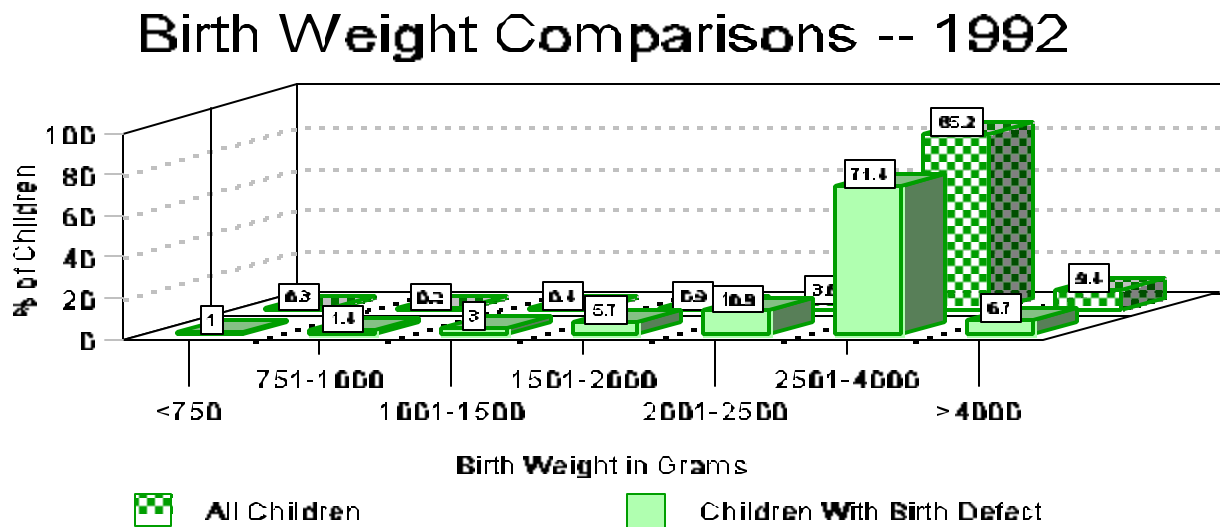
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APPENDIX 7

Birth weight^a

The Arizona Birth Defects Monitoring Program monitors the distribution of birth weight. The data is obtainable from the birth certificate and may allow the detection of major shifts over time in the proportion of newborns with low birth weight.



^a Birth weight data is limited to the birth weight of live and singleton births of infants born in Arizona, who are Arizona residents. Data on birth weight on children with birth defect is limited to only those who have the selected 44 birth defects.

APPENDIX 8

Other Defects Collected by the ABDMP Incidence Rates Per 1,000 Live Births and Fetal Deaths Arizona, 1992

| <u>CODE</u> | <u>DEFECT GROUP</u> | <u>TOTAL</u> | <u>RATE</u> |
|--|---|---|--|
| A00 A17 | CENTRAL NERVOUS SYSTEM Reduction Deformities of Brain | 35 | 0.51 |
| B00 B05 B06 B07 | EYE AND EAR Coloboma of Lens Absence of Iris Corneal Opacity | 3 2 8 | 0.04 0.03 0.12 |
| C00 C03 | ALL EAR DEFECTS Other Anomalies of Ear | 1 | 0.01 |
| D00 D05 D06 D07 D12 D13 D18 D26 D27 D28 D29 D33 | CARDIAC Ventricular Septal Defect Ostium Secundum Type Atrial Septal Defect Endocardial Cushion Defect Anomalies of Pulmonary Valve Tricuspid Atresia & Stenosis Congenital Mitral Stenosis Coarctation of Aorta Other Anomalies of Aorta Anomalies of Great Veins Eisenmenger's Syndrome Conus Arteriosus | 118 50 17 21 6 1 12 7 3 2 1 | 1.70 0.72 0.25 0.30 0.09 0.01 0.17 0.10 0.04 0.03 0.01 |
| G00 G02 G03 | GENITAL ORGANS Hypospadias Epispadias | 151 4 | 2.18 0.06 |
| K00 K01 K02 | ALL LIMB REDUCTIONS Absence/deformity of Upper Limb Absence/deformity of Lower Limb | 19 7 | 0.27 0.10 |
| L00 L03 | Anomalies of Spine | 27 | 0.39 |
| Q00 Q04 | TOTAL ENDOCRINE DEFECTS Anomalies of Other Endocrine Gland | 1 | 0.01 |
| X00 | MISCELLANEOUS DEFECTS | 63 | 0.91 |

The data show that among the other defects collected by the ABDMP, the most frequent defect are hypospadias and ventricular septal defect.